amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 49, No. 11 NOVEMBER 1981

FEATURED IN THIS ISSUE:

- ★ AN ALUMINIUM WINCH-UP TOWER
- ★ A NEW REPEATER SITE
- ★ A TALE OF A TOWER
- ★ CW PROCEDURES AND TECHNIQUES

Registered by Australia Post — Publication No. VBH 0569

Communicate with SCALAR

ANTENNAS

SC33DX H.F. TRI BAND BEAM
SC22DX 5-BAND TRAPPED VERTICAL
"PITCHFORK" MOBILE TRIBANDER
MOBILE H.F. HELICALS
70cm AND 2m. GAIN AND UNITY ANTENNAS

ANTENNA ACCESSORIES

BALUNS. DIPOLE TRAPS AND INSULATORS, STRAIN INSULATORS, QUAD HUBS, ROOF BAR MOUNTS, MAGNETIC BASES, PLUGS, MOUNTING CLAMPS, ANTENNA QUICK DISCONNECTS, BOOT MOUNTS, ANTENNA THREAD ADAPTORS, COAXIAL SWITCHES, COAXIAL CABLE.

EQUIPMENT

TEN-TEC ARGOSY. H.F. TRANSCEIVER
TEN-TEC DELTA. H.F. TRANSCEIVER
TEN-TEC OMNI. H.F. TRANSCEIVER
TEN-TEC 225 and 280 POWER SUPPLIES
TEN-TEC ANTENNA TUNERS
TEN-TEC 209 DUMMY LOAD
TEN-TEC SPEECH PROCESSOR
DL-1000 1kw DUMMY LOAD
TEN-TEC SINGLE AND DUAL PADDLE KEYERS
WELZ SP300 1.8 -500MHZ SWR/PWR METER

FRANK WELSH VK3BPV RON SMITH VK2DCK
MIKE KILPATRICK VK2DJP BRIAN ROBINSON VK4NQG
GEOFF ATKINSON VK3YFA

SCALAR GROUP

NSW: 328 KINGSGROVE RD. KINGSGROVE, 2208 tel: (02) 502 2888
VIC: 20 Shelley Avenue, Kilsyth, 3137 tel: (03) 725 9677
QLD: 8 Ferry Road, West End, 4104 tel: (07) 44 8024
W.A.: Unit 5/319 Pearson St., Osborne Park, 6017 tel: (09) 446 9177

Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

ISSN 0002 - 6859.

amateur radio

NOVEMBER 1981
VOL. 49, No. 11

Registered Office:
3/105 Hawthorn Road,
Caulfield North 3161.
Tel. (03) 528 5962

EDITOR:
BRUCE BATHOLS* VK3UV

PRODUCTION MANAGER:
BILL BALY

TECHNICAL EDITORS:
BILL RICE* VK3ABP
EVAN JARMAN* VK3ANI
RON COOK* VK3AFW
GIL SONES* VK3AUI

CONTRIBUTING EDITORS:
BOB ARNOLD VK3ZBB
G. NICK NICHOLS VK6XI
ROY HARTKOPF* VK3AOH
RON FISHER* VK3OM
ERIC JAMIESON VK5LP
LEN POYNTER* VK3BYE
BILL VERRALL VK5WV
KEN McLACHLAN VK3AH
REG DWYER VK1BR
ROBIN HARWOOD VK7RH

DRAFTING:
NEIL OSBORNE* VK3YEI
PETER KIMBER
SUZY ZLOCH

BUSINESS MANAGER:
PETER DODD VK3CIF

***Member of Publications Committee**

Enquiries and material to:
The Editor,
PO Box 150, Toorak, Vic. 3142

Copy is required by the **first of each month.** Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Material should be sent direct to **P.O. Box 150, Toorak, Vic., 3142,** by the **25th of the second month preceding publication. Phone: (03) 528 5962.** Hamads should be sent direct to the same address by the **1st of the month preceding publication.**

Trade Practices Act: It is impossible for us to ensure that advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are complied with strictly. Readers are reminded that, when buying, obtaining or receiving goods from overseas including goods listed in advertisements by overseas organisations in this Journal, Customs import duties and Sales Tax may be levied on the goods at the time of importation. These amounts, if any, are payable by the purchaser unless the terms of sale state otherwise and the seller has made specific provision to this effect in his quotation to the buyer or unless other prior arrangements are in force between the buyer and the seller.

Typesetting: MUELLER GRAPHICS PTY. LTD.
1a Levanswell Road, Moorabbin, 3189
Tel.: 553 0292

Printers: WAVERLEY OFFSET PUBLISHING GROUP
Geddes Street, Mulgrave 3170

CONTENTS

ARTICLES

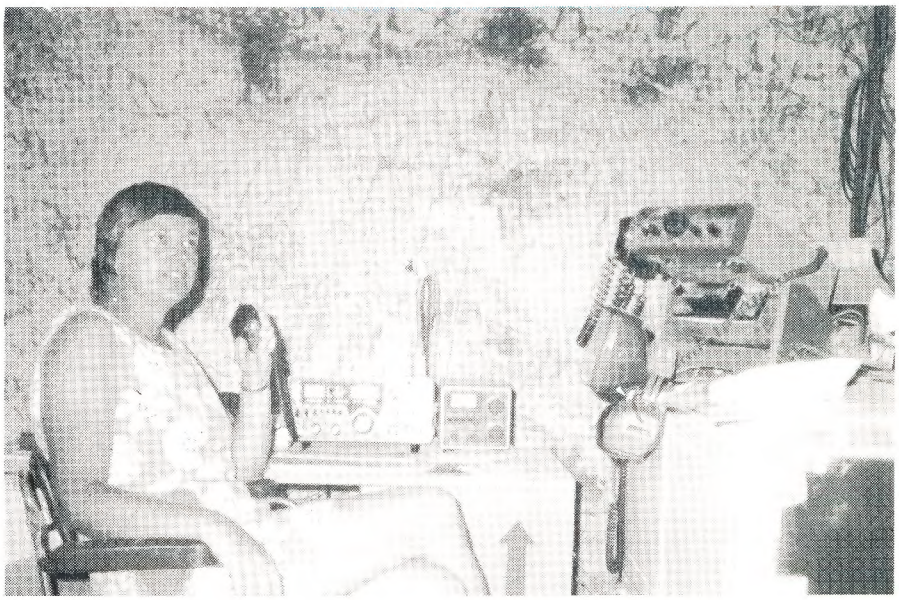
An Aluminium Winch-Up Tower 8
What Should You Know about Burns? 16
CW Procedures and Techniques 17
A New Repeater Site — Part 2 18
A Tale of a Tower 24

ADVERTISERS' INDEX 59

DEPARTMENTS

ALARA 57
AMSAT Australia 47
Around the Trade 45
Awards Column 50
Contests 42
Education Notes 41
Forward Bias 28
Hamads 58
How's DX 37
International News 51
Ionospheric Predictions 40
Letters to the Editor 57
Listening Around 56
Magazine Review 45
Main QSP 4
National EMC Advisory Service 39
Novice Notes 52
Obituaries 58
QSP 20, 33, 36, 45, 48
Silent Keys 58
Spotlight on SWLing 46
VHF-UHF — an expanding world 34
VK2 Mini Bulletin 28
VK4 Notes 33
WIANEWS 5
WICEN 48

Cover Photo



Kathy Marsh VK5NKM in her unique shack at Coober Pedy — see page 46.

Q S P

... --- ...(.)
S O H

If you read AR in detail, you may be aware that the VK2 Division is currently involved in legal discussions on behalf of an amateur and his application to install a tower for use in the normal pursuit of his hobby. The VK2 Division would appreciate help with the quite substantial costs in a legal discussion of this type and has opened a "tower fund" and welcomes all donations, of what ever you can afford, to this fund.

However, you may be unaware that the VK5 Division has also become deeply involved in discussions with various councils, and has accepted on behalf of its members, the task of continuing these negotiations with councils, and into court where necessary. They would also like financial help and have opened a "save our hobby fund" which now gives you some idea of the meaning of the Morse at the top of this item.

At the August Council Meeting of the VK4 Division, it was proposed that a donation of $100.00 be made to each of the funds to indicate our financial and moral support to these Divisions, and it was also suggested Council Members may like to contribute as well to the funds. In a very short time, $39.00 was on the table, to be split between the two funds, after Council Members not present at the meeting had the opportunity to contribute.

As everyone well knows, legal costs are not cheap — if you feel these Divisions have acted correctly, in accepting the opportunity to contest decisions by various Councils, and to contest these decisions in court if need be, please accept this opportunity to donate to both the funds what ever you can afford. If you disagree with the Division's actions, in my opinion, you may have the wrong hobby.

One final point — lawyers and courts work normal 9 a.m. to 5 p.m. days — the people from these Divisions engaged in these discussions are donating parts of their flexidays or holidays to talk to Councils or to appear in court — show your appreciation by donating funds to support their donations.

ALEX McDONALD VK4TE Federal Councillor

(Currently there are considerable problems in Victoria which could have wider implications — Fed. Pres.) ■

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Mr. P. A. Wolfenden VK3KAU
Federal Council:
VK1 Mr. R. G. Henderson VK1RH
VK2 Mr. T. I. Mills VK2ZTM
VK3 Mr. G. A. G. Williams VK3ZXW
VK4 Mr. A. R. F. McDonald VK4TE
VK5 Mr. G. Preston VK5PI.
VK6 Mr. N. R. Penfold VK6NE
VK7 Mr. P. Fudge VK7BQ

Staff: Mr. P. B. Dodd VK3CIF, Secretary.
Part-time: Col. C. W. Perry, Mrs. Ann McCurdy.
Mr. Bill Baly (AR Production).
Executive Office: 3/105 Hawthorn Rd., Caulfield North, Vic. 3161. Ph. (03) 528 5962.
Divisional Information (all broadcasts are on Sundays unless otherwise stated).

ACT:
President — Mr. W. R. Maxwell VK1MX
Secretary — Mr. C. T. Vidler VK1KV
Broadcasts— 3570 kHz and 2m Ch. 6 (or 7): 10.00Z.

NSW:
President — Mr. A. D. Tilley VK2BAD
Secretary — Ms. S. J. Brown VK2BSB
Broadcasts— **1100 local.** 1.8125 (Ncle Relay), 1.825 (Sydney Relay), 3.595, 7.146, 28.32, 52.12, 52.525 MHz, Rptr. Ch. 6650 Oberon, 6700 Orange, 6750 Gosford, 6800 Lismore, 7000 Sydney, 8525 Sydney.
1930 local. 1.8125 (Ncle Relay), 1.825 (Sydney Relay), 3.595, 28.32, 52.12, 52.525, 144.12 MHz, Rptr. Ch. 6650 Oberon, 6750 Gosford, 7000 Sydney, 8525 Sydney.

VIC.:
President — Mr. P. R. Drury VK3JM
Secretary — Mr. D. X. Clarke VK3DES
Broadcasts— 1840, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.
Gen. Mtg. — 2nd Wed., 20.00.

QLD.:
President — Mr. D. Laurie VK4DT
Secretary — Mr. F. J. Saunders VK4AFJ.
Broadcasts— 1.825, 3.580, 7.120, 14.342, 21.175, 28.400, Rpt. Ch. 6700 and 7000 Sundays from 0900Z (Sat. 2300 UTC).
Re-broadcasts—Mondays 3.605 from 1930Z, Mondays 80 or 20m RTTY segment from 200Z.

SA:
President — Mr. J. B. Mitchell VK5JM
Secretary — Mr. W. M. Wardrop VK5AWM
Broadcasts— 1820, 3550, 7095, 14175 kHz; 21.195 28.470 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.
Gen. Mtg. — 4th Tuesday, 19.30.

WA:
President — Mr. B. Hedland Thomas VK6OO
Secretary — Mr. F. Parsonage VK6PF
Broadcasts— 3560, 7075, 14100, 14175 kHz. 28.47, 53.1 MHz. 2 metres Ch. 2 Perth, Ch. 6 Wagin. Time 0130Z.
Gen. Mtg. — 3rd Tuesday.

TAS.:
President — Mr. I. F. Ling VK7XL
Secretary — Mr. P. Clark VK7PC
Broadcasts— 7130 (SSB) kHz with relays on 6 and 2m Ch. 2 (S), Ch. 8 (N), Ch. 3 (NW), 09.30 EST.

NT:
President — Mr. T. A. Hine VK8NTA
Vice-Pres. — Barry Burns VK8DI
Secretary — Robert Milliken VK8NRM
Broadcasts— Relay of VK5WI on 3.555 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal Information:
VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Mon, Tues & Thurs 9.45-13.45h). P.O. Box 123, St. Leonards, NSW 2065.
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 417 3535 Weekdays 10.00-15.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton.
VK6 — G.P.O. Box 10, W. Perth, 6005.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX
The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.
VK2 — QSL Bureau, P.O. Box 73, Teralba, 2284.
VK3 — Inwards QSL Bureau, Mrs. B. Gray VK3BYK, 1 Amery Street, Ashburton, Vic. 3147.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse VK3XY, 83 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001
VK5 — QSL Bureau, Mr. Ray Dobson VK5DI, 16 Howden Road, Fulham, S.A. 5024.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, Mr. N. R. Penfold VK6NE, 388 Huntriss Rd., Woodlands, W.A. 6018.

Letter from the President

This special issue of AR has been posted direct to every known licensed amateur and club in Australia; it is the largest print-run undertaken in the 48 years of our magazine.

The recruiting of new members is of utmost importance if the Institute is to have the necessary resources to serve amateur radio properly.

There is no need for me to repeat here to you, the member, the advantages and benefits of belonging to the WIA — you have already made that decision and by so doing you have "contributed" to the consolidation of the activity in Australia.

Why then send recruiting material to you also? The answer is that we need "saturation coverage" for this campaign. Our records do not necessarily contain details of the most recently licensed amateurs. Also it is not necessary to be a licensed amateur to join the Institute — as an Associate.

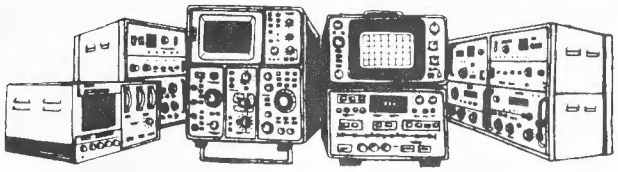
In these areas we seek your help. We specially ask those of you who are in contact with prospective amateurs to introduce them to the WIA.

So let's all get behind this campaign. In the long run a larger Institute will not only help amateur radio in Australia and internationally, but will also spread the financial responsibility in a more equitable way.

If you want more recruiting information please contact your Division or the Executive Office in Melbourne.

73.

P. WOLFENDEN VK3KAU,
Federal President. ■



SERVICE PROBLEMS?

Suffer no more — contact the experts:

GFS ELECTRONIC IMPORTS
15 McKeon Road,
Mitcham, Vic. 3132
Phone (03) 873 3939

Because we have many years experience in the Communications Service Industry, encompassing the CB, AMATEUR and COMMERCIAL sectors we are able to offer you the best service that your set deserves at a realistic price.

Call and discuss your problems with our experts.

WIANEWS

This monthly column, which has been a feature of AR for six years, sets out to inform members about current Institute and amateur radio matters at first hand. The subjects dealt with and reported on are very often on-going material which may or may not re-surface within months or longer.

For example, the WIANEWS column in AR of May quoted directly from correspondence conducted between the Institute and the Department of Communications on the subject of the use of the AX prefix under certain conditions. In WIANEWS of July future proposals for seeking the use of the AX call were also reported. These referred to NATIONAL and not LOCAL events. Nevertheless requests are being received which go outside existing parameters which cannot be supported at this time. Consequently the Executive has decided to submit an Agenda Item on this subject to the 1982 Federal Convention.

A proposal was received from the VK5 Division, backed up by most compelling reasons, that a NATIONAL SPECIAL PURPOSE FUND should be established. Such a fund would be applied to various specific purposes which are clearly matters of national importance to amateur radio and to radio amateurs. An example quoted was the question of costly legal representations recently conducted in VK5 and VK2 tower cases which are of a nature creating precedents in law in favour of amateur radio. The VK5 Division launched a "Save Our Hobby Fund" when it became clear that Court actions resulting from planning approvals being refused by Councils had to be challenged. Although the law on the subject varies from State to State, the effect of successful appeals in one State creates desirable precedents for use elsewhere.

It has now been suggested that this matter should be raised for discussion at the next Federal Convention.

Two new Federal officers have now been appointed. Bob McKernan VK4LG has been appointed FEDERAL INTRUDER WATCH CO-ORDINATOR to replace Graeme Fuller VK3NXI, who resigned in August due to pressures of private affairs. Charlie Robinson VK3ACR has been appointed AMSAT AUSTRALIA CO-ORDINATOR. Bob Arnold VK3ZBB continues as Publicity Officer on amateur satellite matters.

WIA YEAR BOOK

In September the Publications Committee discussed the possibilities of publishing a WIA Year Book annually for sale to members late each year. The Executive supported this in principle and work on it has commenced. The 1982 edition is proposed to be entitled "WIA 1982 YEAR BOOK FEATURING VHF AND NEW SOUTH WALES". The 1983 edition might feature Victoria and antennas, and so on to cover each Division over a seven year period, as well as to include different subject material culled from the pages of AR. This, to some extent, replaces the ideas last year of publishing WIA books on particular subjects, such as VHF.

Whilst the contents of the Year Book have not been completely finalised at the time of writing, it is envisaged that it should be a book which every member ought to have available on his bookshelf for ready reference purposes. Suitable subjects for inclusion would be a diary of events for 1982, year by year historical highlights, lists of past events, past winners of trophies, etc., the more permanent listings presently included in the 1981/82 Call Book, such as band plans and the like, Divisional and Federal Co-ordinators and much more, including the best of VHF from AR taking up to a quarter or more of the book. Every effort will be made to keep the price right and, incidentally, to restrict the print run to a marketable quantity.

PHONE PATCH

Here is the text from a letter dated 16th September received by the Federal President from Jim Linton VK3PC:—

"I am writing to let you know that authorised phone patch experiments were this month conducted using station VK3PC.

"The tests were authorised by DOC and Telecom.

"Their aim was to demonstrate to Telecom the envisaged operation of amateur radio phone patch.

"The tests included Third Party Traffic to and from VK9ZG Willis Island and the patching on air of Telecom's acting manager Telephone Regulatory, Matt Moore.

"He spoke via patch to Gray Taylor VK3VGT.

"Mr. Moore was pleased with the quality of transmission — the QSO lasted four minutes."

"All tests were on 15m using SSB."

1981-82 CALL BOOK

A final reminder that stocks of the Call Book are running out fast at the time of writing. Better not be too late in ordering your copy and any other books, badges, etc. ■

STOP PRESS

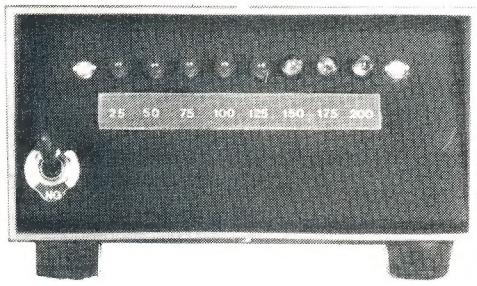
In letter 53/2/6, 51/1/55 of 5th October the DOC has agreed that certain paragraphs in the Handbook will be considered to be non-examinable for future Section "K" (Regulations) examinations.

The non-examinable list is:—

RECIPROCAL LICENSING 2.4, 2.5.
GENERAL 3.1, 32.
SPECIAL NOVICE EXAMINATIONS 3.3.
QUALIFICATIONS AND SYLLABUS 3.4.
PASS CONDITIONS 3.5, 3.6, 3.7, 3.8, 8.9, 3.10, 3.11.
CONDITIONS TO BE FULFILLED BY SUCCESSFUL CANDIDATES 3.12.
REPLACEMENT OF CERTIFICATE 3.15, 3.16.
EXEMPTIONS 3.17, 3.18, 3.19.
TEACHING INSTITUTIONS 3.20.
FORM AND METHOD OF APPLICATION 4.5, 4.11, 4.13, 4.14.
TRANSMITTING EQUIPMENT 5.11, 5.12.
USE OF STATIONS IN THE AMATEUR SERVICE 6.3.
MOBILE OPERATION 6.20, 6.21.
EMERGENCY AMATEUR NETWORKS 6.28, 6.29, 6.30, 6.31, 6.32, 6.33.
RECORDING AND REPLAYING TRANSMISSIONS 6.55.
RELAYING OF TRANSMISSIONS 6.56.
RADIO TELEGRAPHY 8.3, 8.4, 8.5.

★ NEW ★ NEW ★ NEW

THE HELRAY



- Totally new approach
- Acceptable to the Dept. of Communications
- First ever non-laboratory indicator for true, instantaneous peak output.
- No meters or screens to watch or interpret.
- No more guesswork
- Unambiguous over limit indication.
- Amateur – CB – Commercial Application.
- Good to over 80 MHz
- Three Ranges:-5-40W pep in 5 watt steps; 25-200W pep in 25 watt steps; 150-500W pep in 50 watts steps.
- Completely self contained.
- Calibration or checking with inbuilt DC supply.
- Costs only a fraction of the oscilloscope method.
- Based on the novel system proposed by VK3AFQ.

Write or phone

HELRAY ENGINEERING,

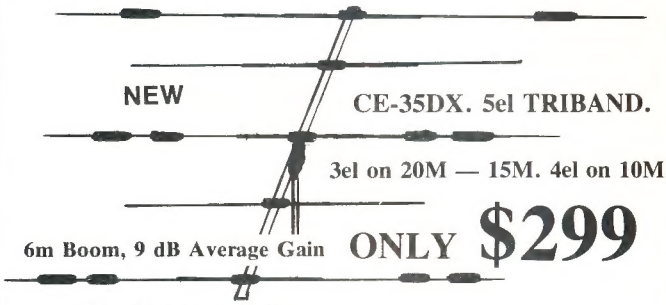
488 Park Rd., Park Orchards. Vic. 3114
(03) 876 1769 for details

ONLY $55 COMPLETE

(PLUS POST & PACKAGING)

FOR A **BIG** SIGNAL

STEP UP TO A HIGH PERFORMANCE CHIRNSIDE ANTENNA SYSTEM



Chirnside antennas feature:

High grade seamless aluminium tubing.
Zinc plated hardware.
Stainless steel compression clamps for easy adjustment.
Plastic "end caps" on ALL elements.
Colour code system for easy assembly.
SWR of 1.5:1 (or better).
Full 12 month warranty against defects parts and labour.

MULTY BAND BEAMS.
"Heavy Duty Type"

CE-35DX Triband 5el 6M boom 2KW PEP 9 dB av. gain $299
CE-36 Triband 6el 7M boom 2KW PEP 9 dB av. gain $319
CE-35 Triband 5el 6M boom 2KW PEP 8.5DB gain $279
CE-33 Triband 3el 4.2M boom 2KW PEP 8.0DB gain.....$249
CE-42 Duoband 4el 4M boom 2KW PEP 8.5DB gain $149
(3el 10M 3el 15M)
CE-52 Duoband 5el 6M boom 2KW PEP 9.5DB gain $199
(4el 10M 4el 15M)

MULTY BAND VERTICALS

CE-5B 80M thru 10M 9M long 2KW PEP Incl. guy ropes.....$99

MONO BAND BEAMS.
"Heavy duty type"

CE3-10 3el 10M/11M 3M boom 8.5DB gain els start 19MM.....$59
CE4-10 4el 10M/11M 4M boom 9.0DB gain els start 19MM.....$79
CE4-10 6el 10M/11M 6M boom 9.5DB gain els start 19MM.....$89
CE5-10 5el 10M/11M 6M boom 10.5DB gain els start 19MM $99
CE5-10 5el 10M/11M 7M boom 11DB gain els start 19MM $119
CE6-10 6el 10M/11M 7M boom 11.3DB gain els start 19MM.....$129
CE3-15 3el 15M 4M boom 8.5DB gain els start 22MM $79
CE4-15 4el 15M 6M boom 9.5DB gain els start 22MM $99
CE5-15 5el 15M 7M boom 10.5DB gain els start 22MM $119
CE3-20 3el 20M 6M boom 8.5DB gain els start 25MM.....$149
CE4-20 4el 20M 7M boom 9.5DB gain els start 25MM.....$169
CE5-6 5el 6M 4M boom 9.5DB gain $79
CE6-6 6el 6M 6M boom 11DB gain $99
Hi-Q 1:1 50 ohm balun for all beams or dipoles $18

MOBILE HELICALS

CH-80M $23
CH-40M $23
CH-20M $23
CH-15M $21
CH-10M $21
Bumper mount to suit $9

Chirnside antennas are available from the following interstate dealers.

N.S.W.: Andrews Communications Systems (02) 349 5792. **TAS.:** V.K. Electronics (004) 31 1708. **QLD.:** Elite Electronics (07) 352 5222 Amateurs Paradise (075) 32 2644. **W.A.:** Willis Trading (09) 328 9229. **S.A.:** Set Services (087) 25 2228.

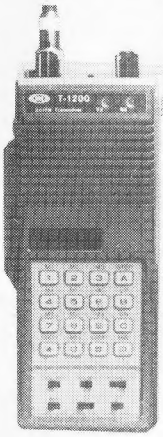
CHIRNSIDE ELECTRONICS,

26 Edwards Road, Chirnside Park, Lilydale, 3116. Phone (03) 726 7353

EMTRONICS

649 George St., Sydney, NSW. 2000. Phone: 211-0531.

CORRESPONDENCE & MAIL ORDERS:
Box K21, Haymarket
NSW, 2000, Australia
WRITE, PHONE OR CALL IN!



T1200 HAND HELD TRANSCEIVER

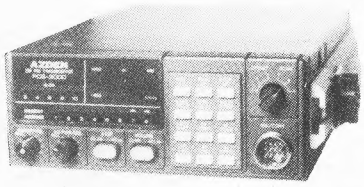
The Best On The Market!

2m/FM SYNTHESIZED PERSONAL TRANSCEIVER **$339**

In the race of popular demand for quality in fully synthesized, multifeature hand held transceivers, the T-1200 emerges as the commanding front runner. More than just handy, the T-1200 stands on a solid platform of big rig features which fully utilize the very latest microprocessor technologies. When you choose T-1200 you opt for 4 modes of automatic scan and search of 10 memories of automatic scan and search of 10 memories and the whole band. When you choose T-1200 you opt for selectable output power of 3.5W or 1.0W with only a 6 ma drain for the optional continuous display of the bright LED readout. When you choose T-1200, you opt for a band range that covers more frequncies than any other hand held, and the ease of entering all frequencies from the integrated keyboard. Assuredly, when you choose T-1200 you opt for the majority leader which hands over features hand over fist.

Wrtie for Colour Brochure & Specs

NEW!



AZDEN

PCS-3000

MICROCOMPUTER 2M FM TRANSCEIVER

WRITE FOR FULL SPECS
OR SEE OUR CATALOGUE

- ★ 8MHz freq. cover. incl. CAP/MARS BUILT IN
- ★ Musical tone accomp. keyboard entries.
- ★ Pushbutton freq. control from mike or panel
- ★ 8 Channel memory with instant memory recall
- ★ Programmable band scan
- ★ 25 watt output ★ Mike has volume/squelch control

UNBELIEVABLE VALUE $379

JRC *Japan Radio Co., Ltd.*

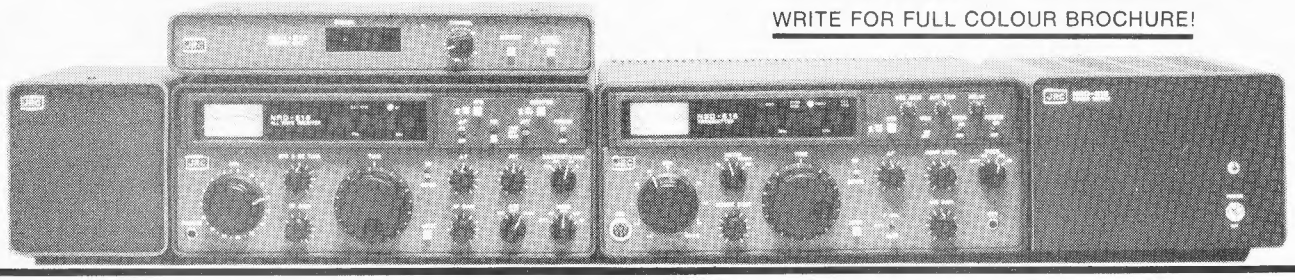
NRD-515 & NSD-515

A DREAM HAM RADIO STATION:

NRD515 a general coverage high performance receiver which only JRC know how to make, coupled with NSD515 a PLL synthesized transmitter into which JRC, a world leading manufacturer of professional radio equipment has concentrated its own know-how of advanced technology.

NO COMPROMISE IN PERFORMANCE

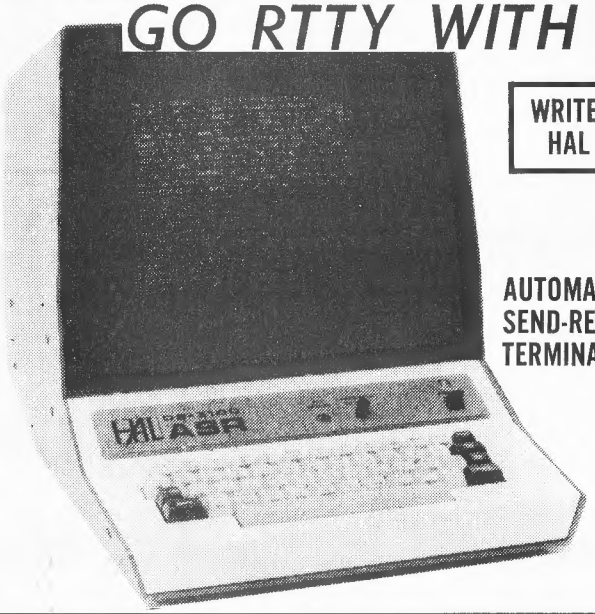
WRITE FOR FULL COLOUR BROCHURE!



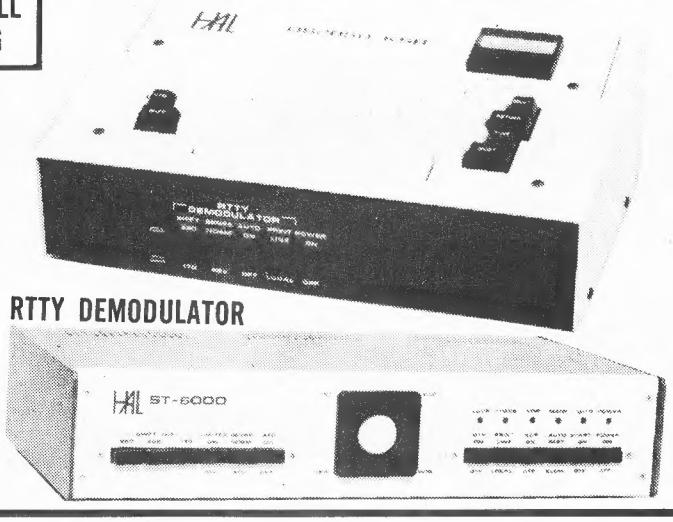
GO RTTY WITH **HAL** *THE LEADER!!*

WRITE FOR FULL HAL CATALOG

LOW COST KEYBOARD SEND-RECEIVE TERMINAL



AUTOMATIC SEND-RECEIVE TERMINAL



RTTY DEMODULATOR

An Aluminium Winch-up Tower

George Cranby VK3GI
PO Box 22, Woodend 3442

WARNING:
If you are not prepared to drill close to 600 holes set out mostly to an accuracy of ±0.5 mm, and to cut 147 accurately measured braces, do not read on.

Not being as young as I used to be, and unwilling to rely on outside help to raise my HF and VHF antennas, I decided to purchase a wind-up, tilt-over tower. One telephone call later I decided to design and build my own! The finished tower carries a Mosley TA33Jr and a 2m ZL Special on a 1.8m timber extension.

Since I have no welding facilities nor access to a galvanising plant I decided to use riveted aluminium sections. Due to my lifelong association with the aluminium industry I was confident that I could avoid corrosion trouble with this material. Despite the relatively high price of aluminium the cost of the completed tower was less than half that of a commercial galvanised steel tower.

My basic requirements were these:—

1. Height 11 to 12m.
2. Suitable for antenna maintenance from ground level.
3. Easy erection without outside help.

My previous telescopic mast had been fitted with a hinge at ground level and was pulled up with a boat winch attached to the garage. The existing base, consisting of a 2½ in. galvanised pipe sticking 200 mm out of a small concrete block, was to be used to hinge the bottom of the future tower. It is recommended, however, to increase the width of the hinge fitting, as shown by dotted lines on Sh. 3; this will increase sideways stability during erection. I have to use temporary stay wires at right-angles to the pull lines to prevent possible side sway when lowering the bottom section.

The material list sounds pretty formidable. However, the aluminimum sections are readily available from Comalco or Alcan supply centres; most other items are standard hardware. The stainless steel cable and thimbles came from a marine outfitter and the winch from a manufacturer. The mild steel fittings were welded for me at a small local workshop and were drilled in my garage.

MATERIAL LIST

1. 8 lengths of 25 x 25 x 3 mm Al. angle, 6m long.
2. 15 lengths of 25 x 3 mm Al. strip, 4m long.
3. 60 3/16 in. x ½ in. galvanised roof bolts and nuts.
4. 200 3/16 dia. x ⅜ in. Al. pop (blind) rivets, typically Sydney Cooke AS66D.
5. 2 3/16 in. or 5 mm drills — you will break or wear out one.
6. 1 ¼ in. x ¾ in. galvanised bolt and nut, to attach pulley.
7. 1 ⅜ in. galvanised bolt and two nuts, length to suit hinge arrangement.
8. 1 ¼ in. galvanised eye bolt with two nuts and spring washer.
9. Small pulley, see sketch.
10. Boat winch.
11. 11m of 2 mm dia. extra flexible stainless steel cable, with s.s. thimble and clamps to suit.
12. Guy wire, insulators, thimbles and clamps, turnbuckles.
13. Mild steel items 3, 4, 5 and 6.
14. One can of chromium or galvanising spray paint.

CONSTRUCTION

It is strongly recommended that construction be carried out in the steps set out below. Believe me, they are based on bitter experience.

1. Mark out all angles. Use a long steel tape fixed to one end. Do **not** measure from one mark to the other. Mark within 0.5 mm tolerance, centre punch and drill. Note that the distance of the holes from the edge of the angle is very critical. Before tackling the upper section angles cut 200 mm off each of them, leaving 5.8m. The 4 pieces are used to make up item 12.
2. Cut all braces. Length of lower braces is not very critical, but of upper braces **is,** since they fit inside the angles. If you are not accurate you may have some filing to do during assembly. Mark all holes within 0.5mm tolerance, centre punch and drill.
3. Assemble braces on the outside of the bottom section. Make up two ladders, stand them on edge and complete the square tower assembly. Rivetting to be done **from the inside** — this is essential. It is useful to loosely insert 3 or 4 rivets ahead of the one being applied.
4. Repeat the procedure for the upper section, but assemble braces on the inside of the angles. Rivetting must be done **from the outside.** This will allow the rivet heads to clear each other when sliding. Please note that the holes on each angle side are offset to allow the braces to clear each other. Be careful, when drilling, to have the offset on the correct side — see bottom of Sh. 2.
5. Each lattice, before assembling into a tower, must be checked for absolute straightness. After assembly, the tower must also be checked. If there is a bend, or a deviation from the 180 and 200 mm widths, drill out the nearest two or three rivets, allow the frame to straighten, re-drill through braces and angles, and rivet again.
6. Drill all mild steel items. Clamp them in their exact position on the respective tower sections and use them as template to drill through the Al angles.
7. Paint the mild steel items with several coats of spray paint or, better, have them galvanised.
8. Assemble steel fittings to tower sections. Note that roof bolt heads must be outside on items 3, 5 and 6, but inside on item 4, to ensure sliding.
9. Attach pulley and eye bolt.

You are now ready to proceed to the:—

ERECTION

1. Slide the top section (2) into bottom section (1). Make sure they do slide, although with some friction due to the horizontal position. If they stick, proceed as per Construction 5.
2. Attach bottom hinge plate (3) to the base by means of the ⅜ in. bolt. Push up the far end — weight just over 20 kg — and rest it on a 1.8m step-ladder or simple shear legs.
3. Attach the rotator, pull in and connect its control cable and test; set to desired position.
4. Attach antenna(s). Connect feeder cable(s) and test for continuity. If the reflector is nearest the ground the SWR should be close to correct.
5. Cut guy wires to calculated length, insert insulators where appropriate and attach with galvanised thimbles to lower and upper top hats, (4) and (6). **Note:** I use two of the upper guy wires, with insulators at the top and 10m down, as inverted V for 7 MHz with excellent results, fed with 75 ohm coax at the top.
6. Make sure that one guy wire set, attached to the centre guy wire hole, points directly to the spot where the pull-up winch will be attached; otherwise you will cause sideways pull and possible disaster.
7. Attach the s.s. winch to the eyebolt by thimble and cable clamps, feed it through the tower and over the pulley and secure it near the winch plate (7).
8. Connect a temporary extension to the lower of the two guy wires facing the pull-up position of the winch (on a suitable point of the house or garage) and attach to the winch.
9. Attach the other two lower guy wires to their ground attachment points. If your hinge base is narrow use temporary stay wires to prevent the tower from swinging before the lower guy wires are sufficiently extended.

10. When the tower is vertical and therefore balanced, detach the guy wire from the winch. Without releasing the pull on the tower attach the guy wire to its ground point.
11. Adjust all guy wires of the lower section to keep it exactly vertical, and make off permanently.
12. Test rotator and antenna(s).
13. Remove winch from garage (or house) and bolt it to the winch plate (7). Attach the s.s. cable to the winch.
14. Although the assembly is very strong I recommend that you pick a still day to winch the upper section to its full height. Leave about 600 mm overlap. During winching make carefully sure that all cables slide up without catching. I fastened the cable bundle to the inside of the upper section braces with insulating tape; during winch-up I taped the cables together every 1m as they fed into the bottom section.
15. Permanently terminate all upper guy wires, making sure that the upper section is exactly vertical. Do not make them too tight because this imposes an unnecessary downward pull on the winch cable. The safe load for a 2 mm flexibe cable is about 300 kg.

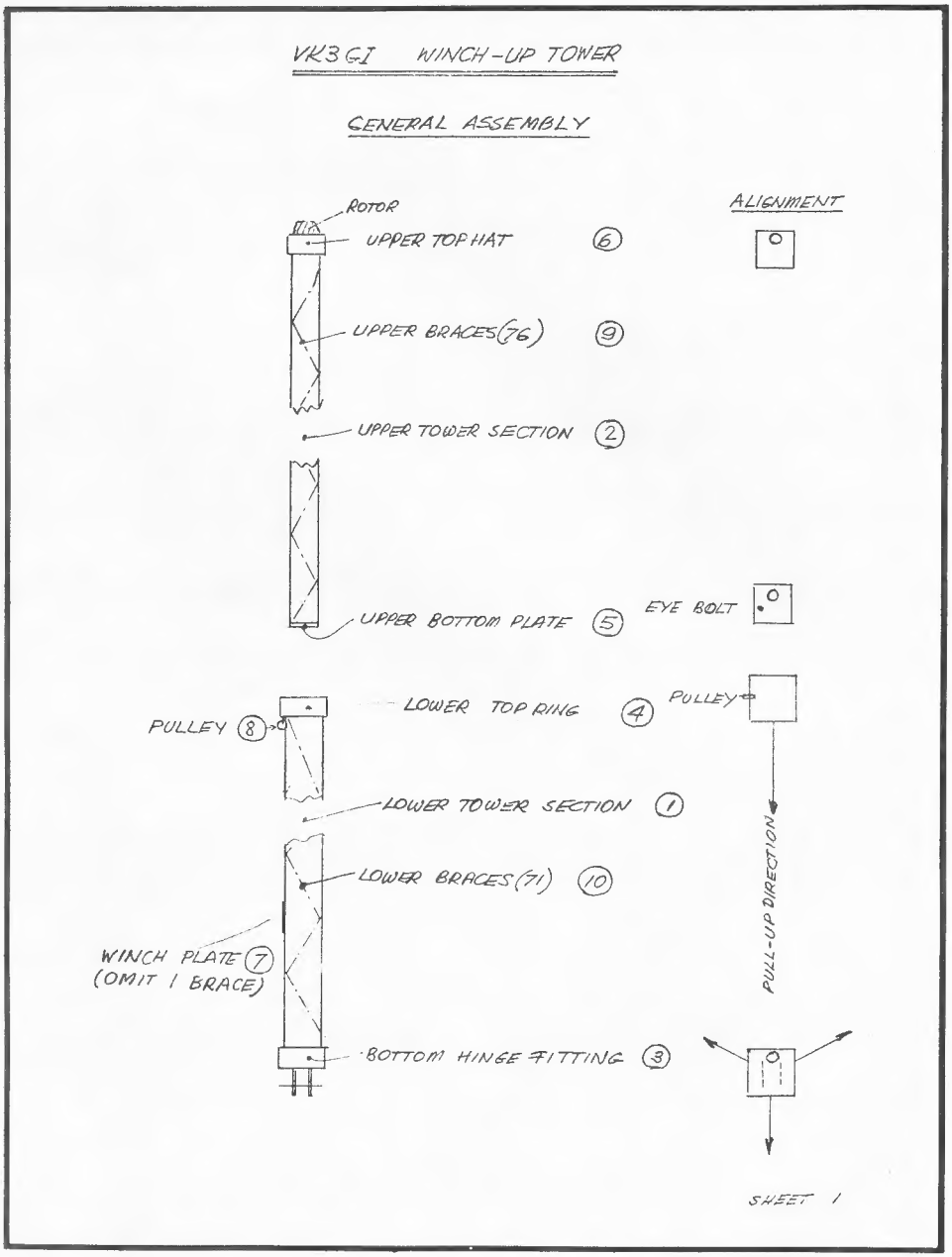
Now operate to your heart's content.

POSTSCRIPT

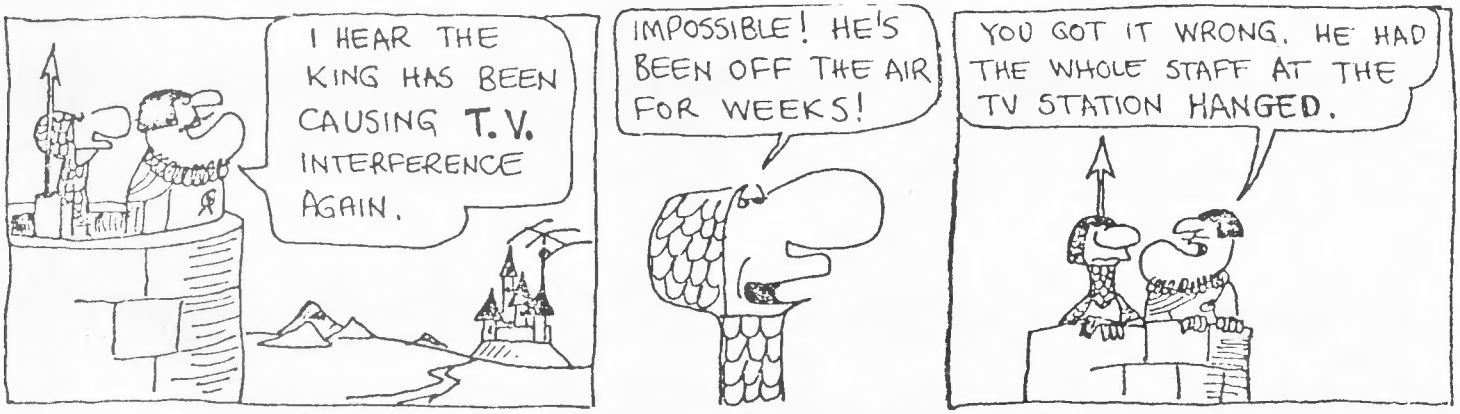
Further notes from author:—

1. It is recommended as good practice to earth the tower by attaching a piece of flexible cable, connected to a ground stake.
2. The stop, item 11, sheet 2, is made up from left-over 25 x 3 mm Al. strip.
3. If 4, instead of 3, guy wires are used the risk of side sway during pulling up or lowering of the tower is eliminated. This modification requires that the guy attachment holes (10 mm) on items 4 and 6 should be drilled centrally on all four sides instead of the 3 holes shown, 2 of which are offset from centre.

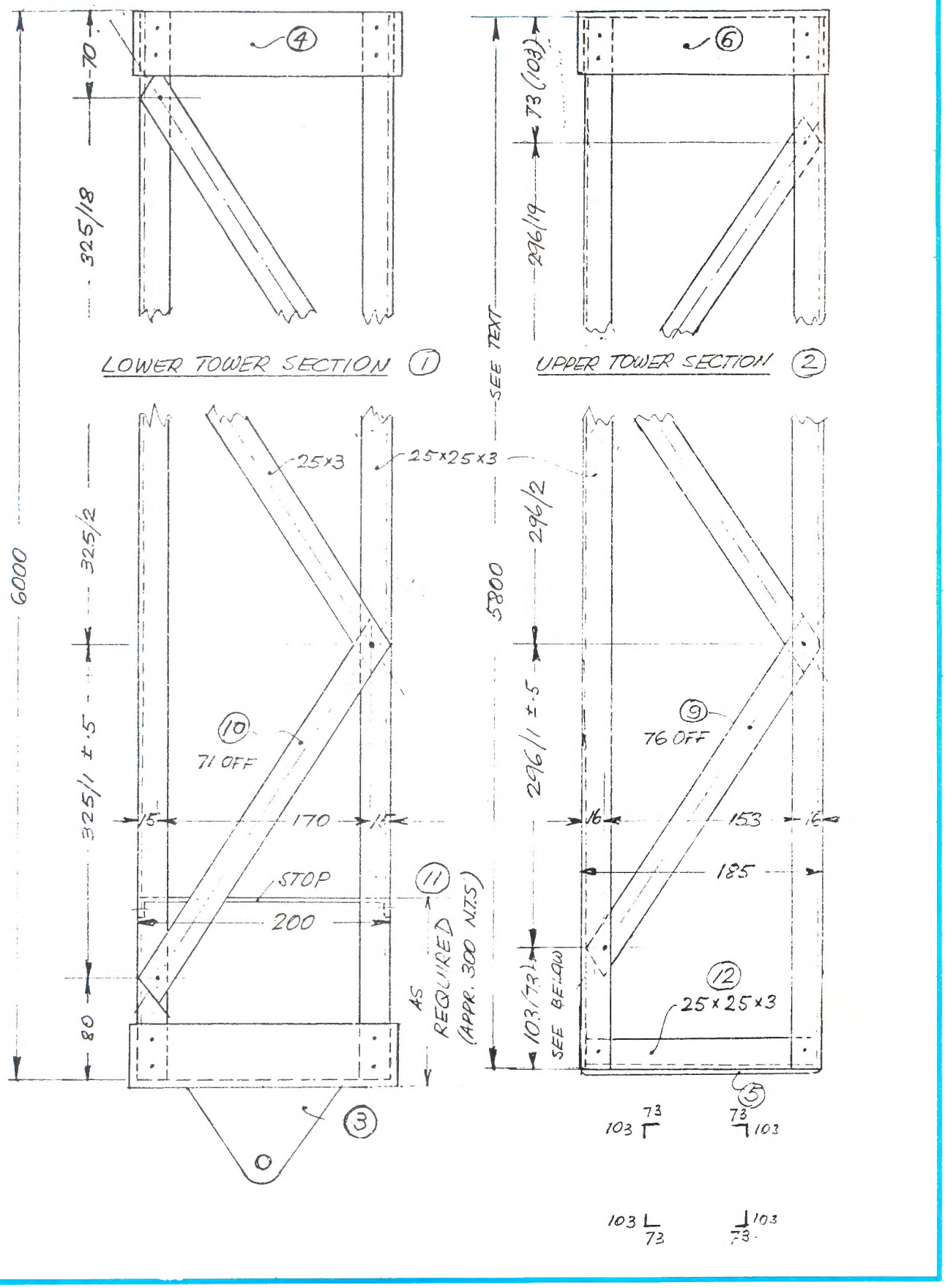
If there are any queries please ring VK3GI on (054) 27 2576. ■

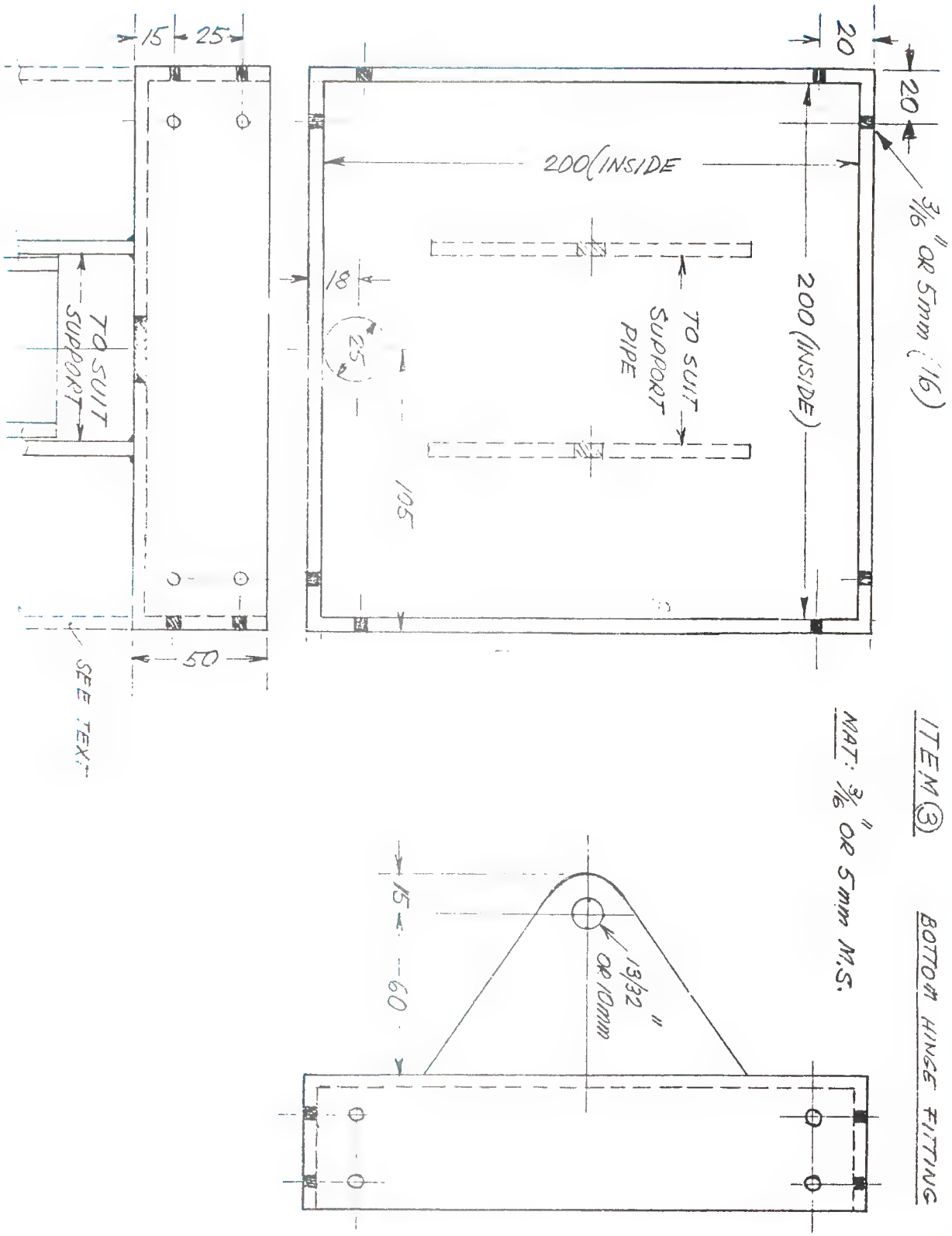


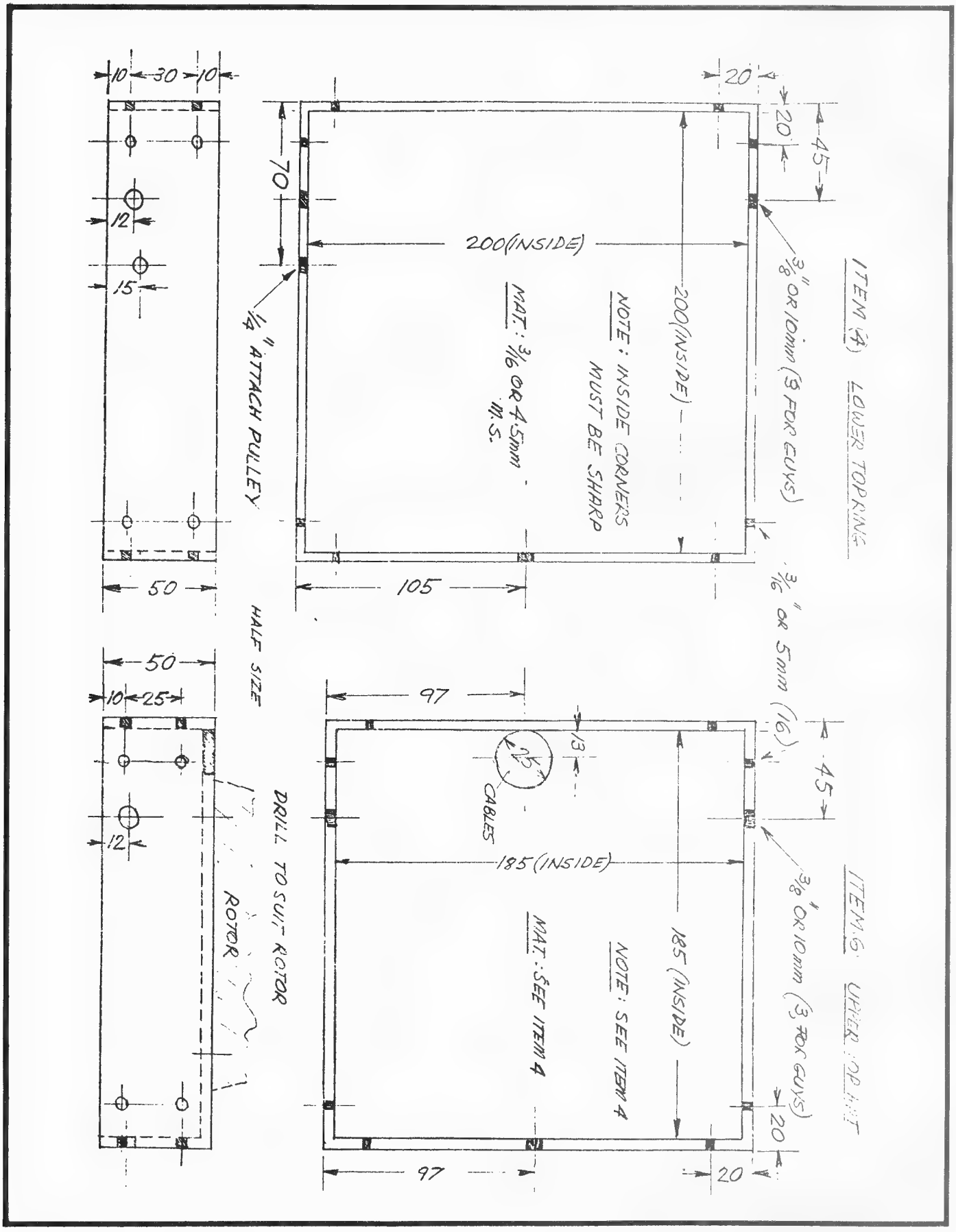
SHEETS 2-7, showing full construction details, follow ➧

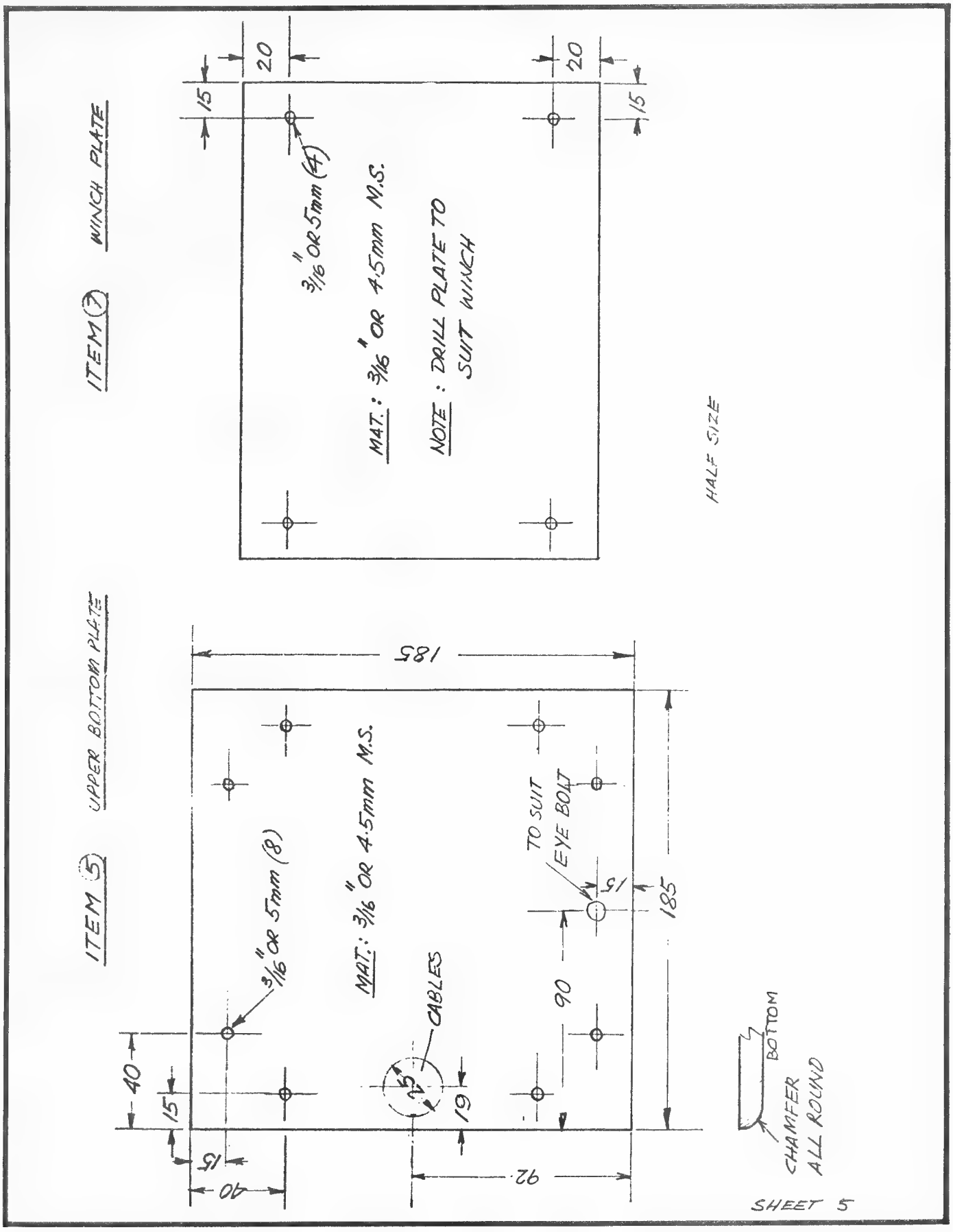

I HEAR THE KING HAS BEEN CAUSING T.V. INTERFERENCE AGAIN.
IMPOSSIBLE! HE'S BEEN OFF THE AIR FOR WEEKS!
YOU GOT IT WRONG. HE HAD THE WHOLE STAFF AT THE TV STATION HANGED.

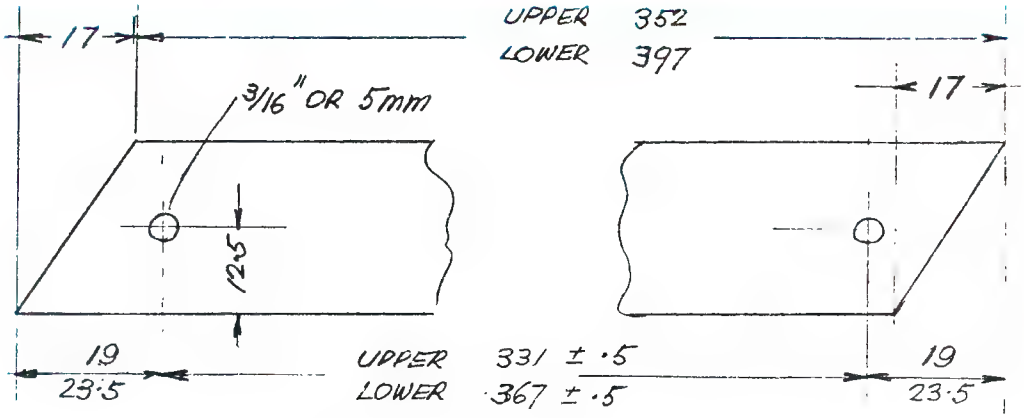
From "The Propagator" April '81


70
325/18
④
LOWER TOWER SECTION ①
73 (103)
296/19
⑥
UPPER TOWER SECTION ②
SEE TEXT
6000
325/2
325/1 ±.5
25×3
25×25×3
⑩
71 OFF
15
170
15
STOP
200
80
⑪
AS REQUIRED (APPR. 300 NTS)
③
5800
296/2
296/1 ±.5
⑨
76 OFF
16
153
16
185
103/73
SEE BELOW
⑫
25×25×3
⑤
103 73
73 103
103 73
73 103


15
25
20
20
200 (INSIDE
3/16" OR 5mm (.16)
18
25
TO SUIT SUPPORT
TO SUIT SUPPORT PIPE
200 (INSIDE)
105
50
SEE TEXT
ITEM ③
MAT: 3/16" OR 5mm M.S.
BOTTOM HINGE FITTING
15
60
13/32" OR 10mm

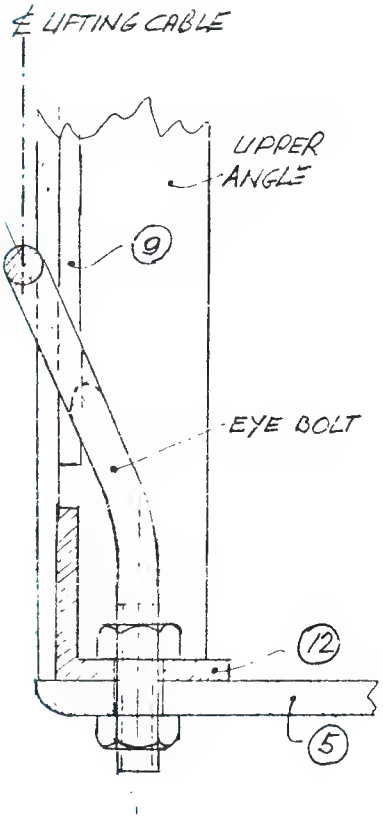

ITEM (4) LOWER TOP RING
ITEM (5) UPPER TOP RING
HALF SIZE
DRILL TO SUIT ROTOR
ROTOR
CABLES
1/4" ATTACH PULLEY
3/8" OR 10mm (3 FOR GUYS)
3/16" OR 5mm (16)
NOTE: INSIDE CORNERS MUST BE SHARP
MAT: 3/16 OR 4.5mm M.S.
NOTE: SEE ITEM 4
MAT: SEE ITEM 4
200(INSIDE)
185(INSIDE)
105
97
70
50
45
30
25
20
15
12
10
3


ITEM (7) WINCH PLATE
20
20
15
15
3/16" OR 5mm (4)
MAT.: 3/16" OR 4.5mm M.S.
NOTE: DRILL PLATE TO SUIT WINCH
HALF SIZE
ITEM (5) UPPER BOTTOM PLATE
185
3/16" OR 5mm (8)
MAT.: 3/16" OR 4.5mm M.S.
TO SUIT EYE BOLT
15
185
90
CABLES
40
15
15
40
19
92
BOTTOM
CHAMFER ALL ROUND
SHEET 5

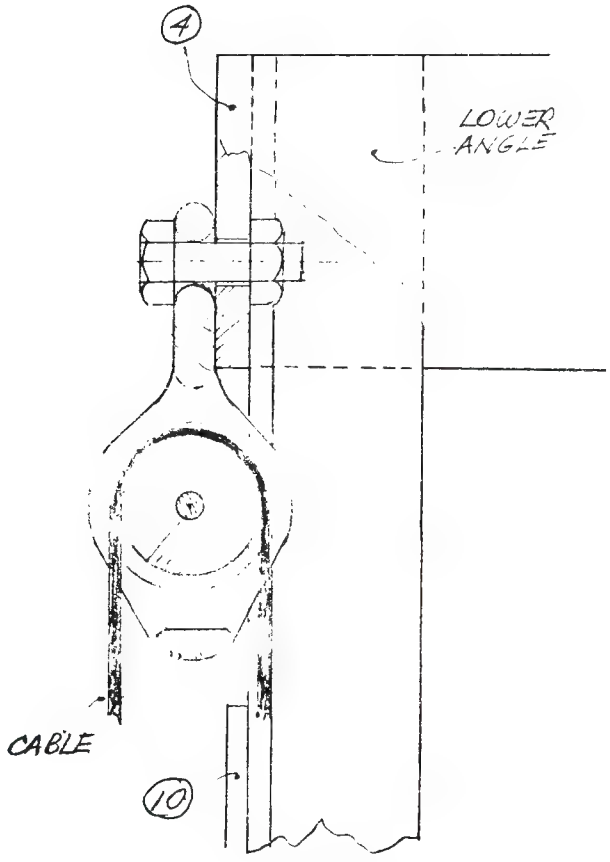


BRACES (9) & (10)
FULL SIZE

NOTE : LOWER BRACES (10) ASSEMBLED OUTSIDE ANGLE
UPPER BRACES (9) ASSEMBLED INSIDE ANGLE

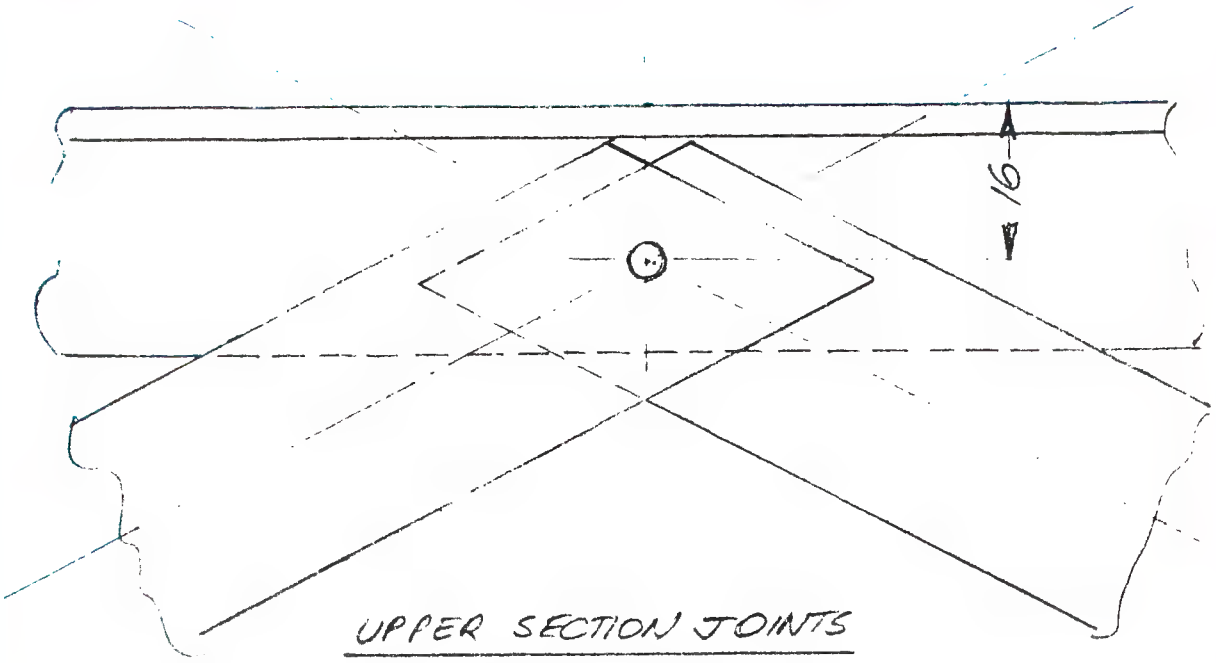


LIFTING EYE ASSEMBLY
FULL SIZE



PULLEY ASSEMBLY
FULL SIZE

SHEET 6

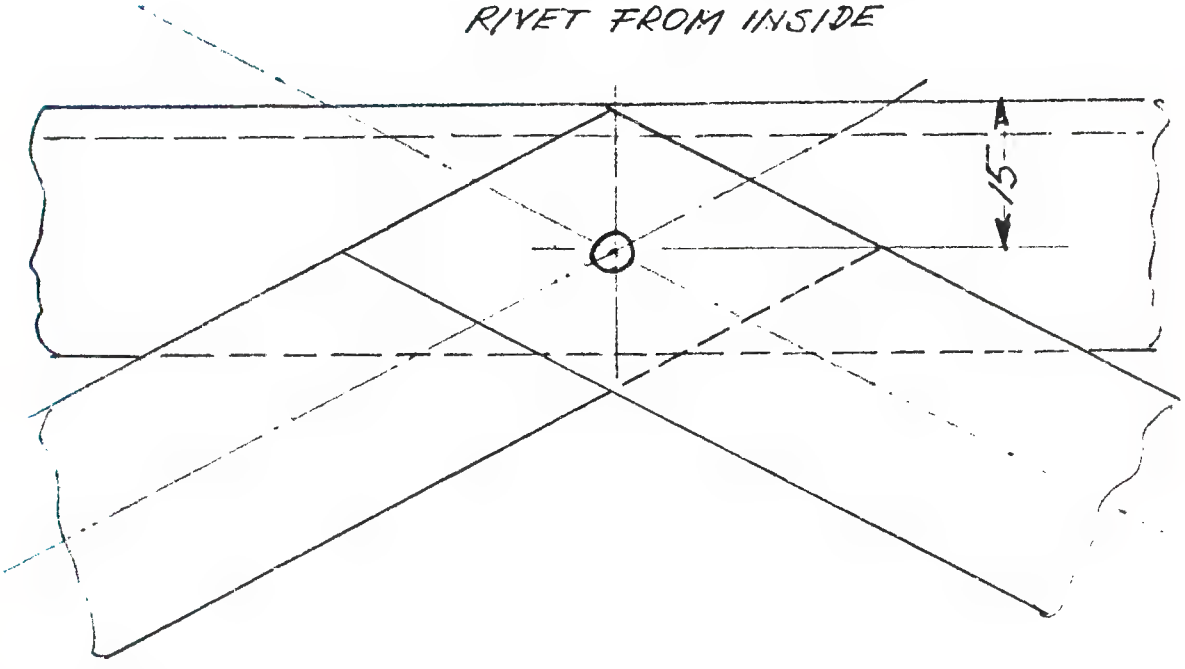


UPPER SECTION JOINTS

RIVET FROM OUTSIDE

LOWER SECTION JOINTS

RIVET FROM INSIDE



What should you know about Burns?

Man is a fragile creature, intolerant of even quite moderate heat. In general, temperatures about 65°C (150°F) are tolerated for only limited periods, the length of time depending on the dryness of the air, the amount of protective clothing worn, and the exertion required. Above 95°C (203°F), the tolerance time drops sharply so that while 120°C (250°F) can be tolerated for 15 minutes, 145°C (294°F) becomes intolerable in 5 minutes, and at 175°C (348°F) irreversible injury occurs to the skin in less than one minute. These tolerances compare unfavourably with the heat generated by a fire, which may reach temperatures of 150°C ten feet ahead of the blaze and over 543°C (1,000°F) above the fire.

HOW EXTENSIVE IS THE BURN PROBLEM?

The National Commission on Fire Prevention and Control, in its Report to the President and the Congress, said that 300,000 Americans are seriously burned each and every year. "Seriously burned" in this Report was considered to be a burn of 15 per cent of the body surface or more, although from the point of view of life survival, physicians in this country consider a 15 per cent burn life-threatening only in toddlers and in the ill and elderly, unless the wounds become infected.

Doctors refer to the severity of burns as first, second and third degree. The most severe are third-degree burns and the least severe first-degree. This is exactly the opposite of legal terminology, in which first-degree murder is the most serious.

BURN DEPTH

In a first-degree burn, the skin is reddened but there is no blistering. Most of us have had first-degree sunburns at one time or another, and some of us have had sunburns that blistered.

A second-degree burn includes both reddening and blistering, but does not destroy the full thickness of the skin. With the possible exception of the soles of our feet, we don't think about our skin as being thick, since it is so easy to cut through with a razor, but the thickness of the skin is important. If only the upper layers of the skin cells are destroyed, new skin can grow from the uninjured cells below. An analogy can be made with a lawn. If you cut the grass, it will grow again from the roots. If you destroy cells in the upper layers of the skin (whether by burning or by skinning your knee), the wound will repair itself from the cells that are not damaged. If, however, you bring a bulldozer into your yard and plow up all the grass by the roots, the lawn will not grow until it is reseeded. Similarly, if you destroy all the skin cells by heat, the skin will not regrow but must be replaced by a skin graft.

The severity of a burn is determined by many factors, some of which are the intensity of the heat (°C), the length of exposure, the size of the body area burned, the thickness of the skin, the age and health of the victim, and the speed of subsequent cooling. Two burns that look identical on the surface may have different outcomes, depending on whether or not the full thickness of the skin has been destroyed. If you have ever cooked a chicken, you are aware that it takes time for heat to penetrate. Skin that has been exposed briefly to high-intensity heat may look like a full-thickness burn, with the surface charred yellow-brown or whitish, but deep cells may still be intact. A longer exposure to more moderate heat may result in a wound that cannot heal without grafting because the heat has had time to penetrate, and all the underlying cells were destroyed.

IF IT HURTS, REJOICE

If you burn yourself in your kitchen or while fighting a fire and the burn hurts, it is a good sign. A full-thickness (third-degree) burn destroys the nerve endings and does not hurt. If properly cared for, a wound that hurts will probably heal without the necessity for grafting.

CONVERSION OF SECOND-DEGREE TO THIRD-DEGREE BURNS

Even with good care, a deep second-degree burn can become infected. Pathogenic bacteria (germs that can cause infection) are everywhere — on the victim's skin, in the air, your mouth, on the page you are reading, on floors, tables, and especially on your hands. If a burn becomes contaminated with bacteria, there is a good chance that the bacteria will invade the burned tissue. Intact skin resists bacterial invasion, an important service of which most of us are unaware. Without skin to protect us, we are all vulnerable to infection. When a burn becomes infected by bacterial invasion, the last remaining islands of cells from which skin can regrow can be destroyed. Pus is little more than dead bacteria, dead white blood cells (which come to do battle with the bacteria), and cell debris. A neglected burn is much more likely to become infected than one that is cared for.

KEEP YOUR FINGERS OFF THE BURN WOUNDS

Your fingers, which go to dirty places, are loaded with bacteria and so is your mouth. The heat that causes a bad burn may kill many of the bacteria on a burn wound, but contact with human hands can re-establish them there. Bacteria may spread through the tissues, killing cells, creeping through body to the bloodstream, causing fever, debilitation, and death. Protect burn wounds from germs while in transit by covering them with the cleanest material avaiable. If sterile dressings are not at hand, a clean sheet or pillowcase will do.

Every time you speak, you spray the people around you with bacteria. The germs are so small that we can't see them, but they are there, and many of them can wreack havoc in an open wound. If you have a cold or sore throat, you are a menace to the burned patient. Let someone else take care of him, if anyone else is available. In any case, cover the wounds early.

WHAT ABOUT COLD WATER?

You can actually decrease the severity of a burn if you cool the skin quickly. If you wait five minutes and put cold water on broken blisters, you may do more harm than good, introducing bacteria into the wound with the water. Don't waste time trying to get ice out of ice-cube trays. If you burn your finger in the kitchen, put your hand under the stream of water from the cold-water tap. If blisters are already broken, forget the water; put a sterile dressing or the cleanest material available on the burn, and seek medical care.

HANDS ARE LIKE MONEY IN THE BANK

Your hands feed you, dress you, save you from falling, help you over rough terrain, carry your burdens, and serve you in a thousand ways. Be kind to them. Medical attention is wise for all but the smallest burns of the hands. Even little burns of the hands should be covered with sterile dressings, since hands can readily become contaminated with bacteria.

WHAT ABOUT SURVIVAL?

The size of the body area burned is important in determining the victim's chances of survival. In general, for adults, if you add the patient's age to the extent of his burn, the patient will have better than a 50 : 50 chance of surviving if the total is under 100.

Like the elderly, infants and toddlers are more vulnerable to fire than those in the middle years. They have more difficulty escaping from flames and are less aware of what they should do, and thus tend to be more severely burned than older children. Once in school, children learn quickly that they should drop and roll if their clothes catch fire, but this instruction comes much too late. It should be given to two-year-olds. It is a mistake to sell the little ones short and assume that they are too young to learn or understand, for the **best burn treament is prevention.**

(Article by Dr. Anne W. Phillips, Executive-Director of the National Smoke, Fire and Burn Institute, Inc., which appeared in the FIRE JOURNAL of the National Fire Protection Association, Boston, Mass., USA.) ■

CW Procedures and Techniques

By Bert G3XSN
From RNARS Journal "Jimmy", April 1981

Morse Telegraphy is supposed to be the transmission of intelligence by means of Morse Code. Whilst I do not profess to be an expert, I guess that poor old Samuel Morse must have turned over in his grave many times listening to the Amateur Bands.

As far as I know, CW is still based on a 3 : 1 ratio at about 15 w.p.m.

An operator with a slow steady clean cut method of sending has a big advantage over the poor operator. Good sending is partly a matter of practice, but patience and judgment are just as important qualities of an operator as a "good fist". Operating knowledge of Standard Procedures and some "NET" know-how are necessary.

The best operators, both using "phone" and "CW", observe certain operating procedures which are regarded as Standard Practice.

(1) CALLS

VK2NLE, VK2NLE, VK2NLE, de G3XSN, G3XSN, G3XSN, AR . . . a long call is unnecessary, and only causes frustration.

CQ

The general enquiry call. The length of repeated calls is carefully limited in **intelligent** amateur operating. CQ is not used when testing or when the operator is not expecting or looking for an answer.

Never send CQ "blind". Listen to the transmitting frequency first. If nothing is heard, then ask QRL (is this frequency in use, please?). It does no harm to enquire a couple of times before putting out a call.

THE DIRECTIONAL CQ

To avoid useless answers and lessen QRM, every CQ call should be made informative, when possible. Repeat, do **not** answer such calls **not applicable to you.** E.g., CQVK, CQVK, CQVK de G3XSN, G3XSN, G3XSN.

Amateurs who do not raise stations easily may find that their sending is poor, their calls badly timed, or their judgent in error.

When conditions are right to bring in signals from the desired locality, you can call them with **short calls** at about the same frequency, with breaks to listen. This will raise stations with minimum time and trouble.

(2) ANSWERING A CALL

After contact is established, decrease the use of the call signals of both stations to once or twice.

When a station receives a call but does not receive the call-letters of the station, calling QRZ? may be used. It means "By whom am I being called?".

QRZ should not be used in place of CQ.

(3) ENDING SIGNALS AND SIGN-OFF

The ending signals AR, K, KN, SK and CL are often confused.

AR means ends of transmission. It is recommended after a call to a specific station **before contact has been made.** E.g., ZL1AXM (x3) de G3XSN (x3) AR.

K means to go ahead. (Any station.) Recommended after CQ and at the end of each transmission during QSO, when there is no objection to others breaking in. E.g., CQ, CQ, CQ, de G3XSN, K, or VK4XY de G3XSN K.

KN — Go ahead (specific station), all others keep out. Recommended at the end of each transmission during a QSO, or after a call, when calls from other stations are not desired and **will not** be answered. E.g., VK6PG de G3XSN KN.

SK means end of QSO. recommended before signing **last** transmission at end of QSO. E.g., VK2DDW de G3XSN SK.

CL means "I am closing down my station". Recommended when a station is going off the air to indicate it will not listen for further calls. E.g., VK4CD de G3XSN SK CL, or SK VK4CD de G3XSN CL.

R means transmission received as sent. Use "R' only when **all** is received correctly.

REPEATS

When most of the transmission is lost, a call should be followed by correct abbreviations to ask for repeats. When a few words on the end of a transmission are lost, **the last word received correctly** is given, then send "AA?", meaning "all after". This invites the station to repeat again **all** after the last word correctly received.

When a few words at the beginning of a transmission are lost, then send "AB?" ("all before") and send the word which was received correctly.

The quickest way to ask for a fill in the middle of a transmission is to send the last word received correctly, a question mark, then the next word received correctly. Another way is to send "?BN" (word) and (word). **Do not** send words twice (QSZ) unless it is requested. **Do not** send QRM or QRN when **you mean QRS.**

GOOD PRACTICES

(1) The letter "R" is often used in place of a decimal point — e.g., 3R5 MHz, or the colon in time designation — e.g., 2R30 p.m.

(2) A long dash is sometimes sent for Zero.

(3) For best results, send at a medium speed.

(4) Send evenly with proper spacing.

(5) No excuses for "poor or garbled copy".

(6) Good operators do not anticipate.

(7) "Swing" in a fist is **not** the mark of a good operator.

(8) Unusual words are sent twice.

ON GOOD SENDING

Think about your sending a little. Are you satisfied with it? You should not be, ever. Nobody's sending is perfect, and therefore every operator should continually strive for improveent. Do you ever run letters together, like Q for MA, or P for AN — especially when you are in a hurry? Practically everyone does at one time or the other.

Tape record your QSOs and play them back to yourself. Can you read what you send? If possible use an inked tape recorder. This will really show up your faults.

Not so long ago I was trying to copy an Amateur's call sign. He was sending "VI2ZZ"; what he meant to send was "I2ZZV". This is very bad practice. When conditions are poor, **don't** continue repeating irrelevancies instead of "Guts". Do not send Name, Name, Name, QQ times — send Bill, Bill, Bill, or Liverpool, Liverpool, instead of **QTH** 1000 times. ■

DIAL-A-PROP

A telephone service, telephone (02) 269 8614, provided by the Ionospheric Prediction Service, detailing the state of the sun, the Ionosphere and the earth's magnetic field, began on 1 October, 1979. The daily report includes the following details:

1. The current status of IPS disturbance warnings. If one is current, its text will be given. The warnings include details of solar activity, sudden ionospheric disturbances (daylight fade-outs), and current and expected geomagnetic disturbances.
2. The current state of solar activity (flares, active sunspot regions), and the expected course of solar activity over the next three days. Flares are described on the M (1-9) and X (1-9) scales which refer to their medium or strong X-ray effect.
3. A report on ionospheric conditions in the Sydney area and a forecast of general radio propagation quality for the next three days (good, fair, poor).
4. The current state of the geomagnetic field and its expected behaviour over the next 24 hours.
5. The Ottawa 10.7 cm solar radio flux for the previous 24 hours and the predicted values for the next three days.
6. The observed magnetic A-index (Fredericksburg) for the period two days previously and the predicted values for the following three days.

The duration of the message is between 45 and 90 seconds and the contents of the message is updated daily at about 1000 AEST (0000 UT), with more frequent amendments at times of high solar, geomagnetic, or ionospheric activity.

This service is titled the IPS Daily Solar Geophysical Report and the telephone number is (02) 269 8614. ■

A New Repeater Site — Part 2

Jill Weaver VK6YL
Hon. Secretary, WA Repeater Group

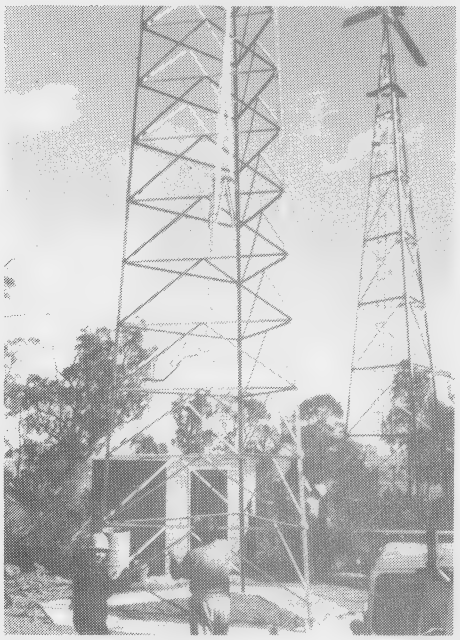
The events leading up to concrete pouring day — "C" Day — were all explained in the first part of this saga. Now it is "C" Day minus 1.

At 7.15 p.m. on Friday night we were informed that the intended cement truck had a damaged gearbox, the readout for the weigh batching machine was needed urgently in the country, and just to add to our worries the front-end loader was required by the quarry to replace another machine due for service. Fortunately a substitute cement truck was arranged and Peter VK6PO burnt midnight oil constructing another readout for us to use.

Undaunted we proceded. Over 20 of us arrived on site at 8.00 a.m., Saturday, the 6th of June, compacted the sand and prepared the formwork for the shack floor and roof, while all the time the rain clouds darkened above. Simultaneosly at 1.00 a.m. the concrete truck, the front-end loader and the rain arrived. For four hours ingredients were weighed, mixed, poured, vibrated and shovelled by the very hard working team who thanked the truck driver at 2.00 p.m. and retired very wet, cold and soggy for lunch in the quarry shed. Due to many gallons of water lying on top of the concrete it was impossible to trowel it over. It was covered with donated plastic and the cleaning up process then began. Meanwhile my OM, Bob (not an amateur), who had driven the loader all day, continued to ferry excess blue metal and sand up to the hill — filling in potholes on "Tic Highway" and levelling out "sump-crushing" rocks until the track became too slippery and darkness fell. Around 8.00 p.m. many very tired but elated people wended their weary way home; we had achieved step one of our goal.

People are wonderful . . . from several sources we acquired around 2,000 bricks, 1,400 new ones, with the balance second-hand, which were transported to the site in borrowed trailers and cleaned by teams of amateurs, wives and harmonics, who sounded like little elves with their picks and doonas. Stan Robson, a bricklayer friend of one of our members, volunteered to build the shack, with our group doing the labouring. Drums and trestles were lent by amateurs, a door frame donated and vent bricks purchased. We mixed the cement by hand for Stan, who completed the shack in four working days, and christened it "Ticky". Please note that we call the site "Tic Hill". We chose TIC in preference to TICK for originality. Much trauma when the day came to lift the roof on top of Ticky, but with the aid of the crane — borrowed of course — this was achieved without any hitches.

Whilst Stan was bricklaying other members were hard at work removing the corrugated iron forming which left a beautiful



crinkle cut finish on the concrete. One of the most back-breaking jobs was that of refilling the rocks and gravel around the tower bases and levelling off the site. Each week work continued in an endeavour to return the area back to a natural contour to allow nature to take her course in time to come.

Ilmar VK6ZILB was in charge of the wind generator and tower, which in no time grew above the trees to 40 feet high. He spent many many hours of his own time, not only on the wind generator and the attractively finished zelamite panel housing the controls, fuses, etc., but he prepared for the coax and cables, the bench and many other things — thank you Ilmar. Meanwhile other members worked on the 100 ft. antennae tower. We had to pick our days carefully as during winter the rain and winds were extremely strong, especially for the boys working around the 80 ft. level of the tower. One calm Sunday afternoon we ran out of nuts and bolts. We were very thrilled when we received a relay from the firm responsible for earlier donations to say they would meet us at their business premises and give us sufficient to complete the tower.

A tradition was set — hot potatoes at the end of each working day, cooked in foil in the coals of the fire originally intended to burn out a large tree stump. Long after the stump had gone the fire was lit to provide warmth and a drying agent for the wet and weary. Later we enjoyed making a small barbecue from the left-over site materials, and sausages were added to the menu.

We are greatly indebted to the brothers Kevin VK6AKW and Peter VK6PO, with son Robert, for their expertise throughout the project from beginning to end, especially with the main tower, liaison with many firms and hours of hard work. Peter made a gin pole which allowed us to lift the very heavy tower top in place at the 100 ft. level, with the 22 ft. 6 dB gain co-linear antenna above this.

Our president, Trevor VK6MS, had the unenviable task of designing and con-

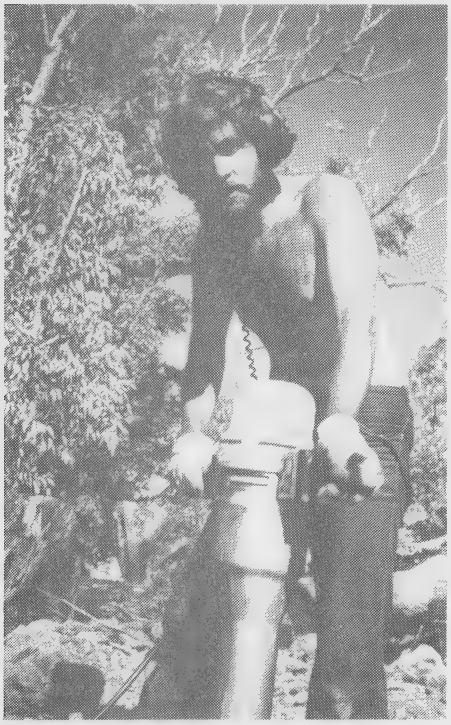
Site clearing.

structing innumerable items for the site. His knowledge and organisation of materials, together with his extensive supply of tools, never failed to amaze us. The project would have never eventuated without you, Trevor. Thank you from all of us.

Much barbed wire was run around the towers and entry pipes to increase security; later we hope to erect a fence. Lights were fitted inside Ticky, which has been painted with several coats of a white waterproofing solution on the entire inside and roof top; no mean feat when it was pouring down with rain during this process, the solution could only be described as looking like a soggy flour and water dough — it clung to our brushes like glue!

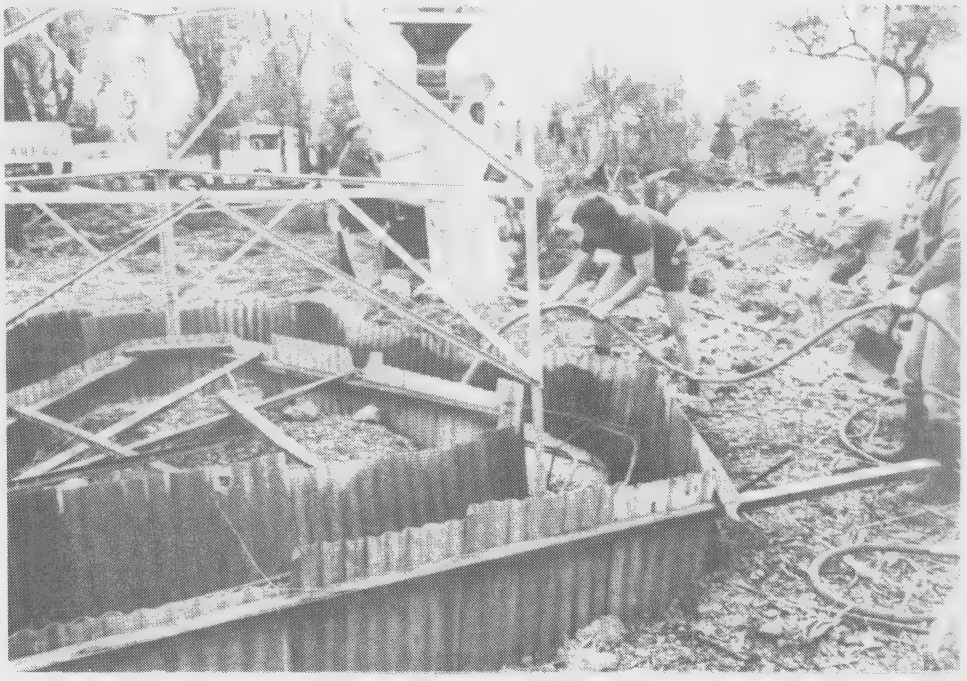
Will VK6UU, Ilmar VK6ZIB and Barry VK6BKZ continued working on the site during the RD contest, taking time off to contact the other members participating via the new repeater antenae, wind generator and six only 2V 500 AH batteries — well done boys! They discovered that power line noise was present. Suspecting the 22 kV 3-phase lines just to the north of the repeater to be the culprit, we set out the following Sunday in a 4-wheel drive equipped with foxhunting beam and snoop loops to track down the offending pole. Murphy showed his presence as usual; no power line noise could be heard that day, though four very audibly noisy insulators were located after a spine crunching two hours almost blazing our own trails in the rocky terrain. The authorities have been notified and are going to replace the insulators.

George, the operator of the Catt D988 loader (called "Betsy"), volunteered his services with permission of the owners to landscape the terrain around our site — we would still be shovelling next Christmas without his generous help. Fifty tons of gravel, road base and clay, yuk! not too much clay thank heavens, were carried in the huge bucket and spread around the site, with the members shovelling and raking it flat. It looks lovely, thank you, George, for all your work and especially for our "pet rock"; all 21 tons of it brought from the quarry to the site. Talking of pet rocks, interesting coloured strata was found whilst jackhammering; chips of these were sold to boost our very depleted funds. Spring is now upon us, the wild flowers are in bloom around the area, and we hope it will not be long before they return to where we disturbed the land.



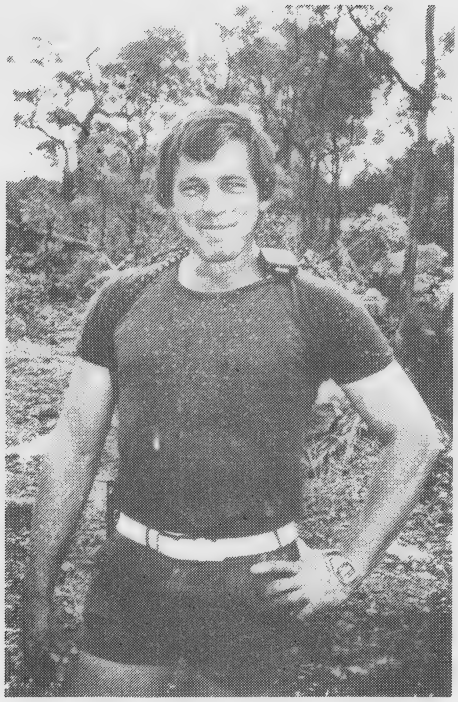
"What frequency rocks did you want?"

Ilmar VK6ZIB and the wind generator.

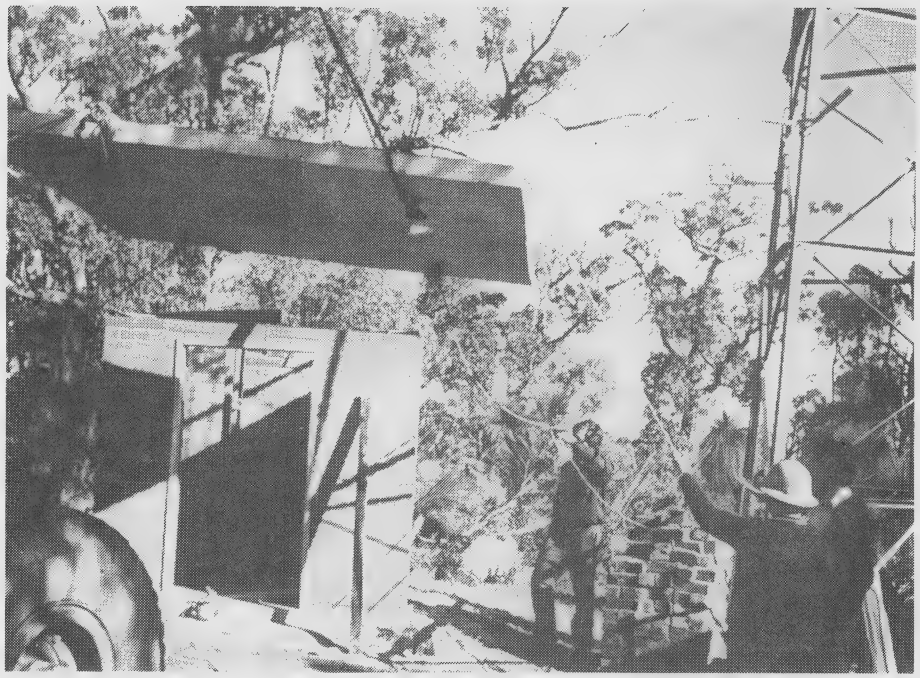


"C" Day.

The repeater has been installed and we are in readiness for the grand opening in mid-October. Over 365 days (1 year without holidays) working 10 hours each day would have been needed for one man to complete the project. There were actually 25 full days (8,760 hours) worked by the following amateurs, wives, harmonics and friends:— VK6AD, VK6AUS, VK6AKW, VK6CU, Sune, VK6EW, VK6FC, VK6HA, VK6HL, VK6KB, VK6KG, VK6KGE, VK6MS, VK6NWB, VK6OO, VK6OW, VK6PO, Robert, VK6PQ, VK6RW, Stan Robson, VK6UO,



"We did it!" President Trevor VK6MS.



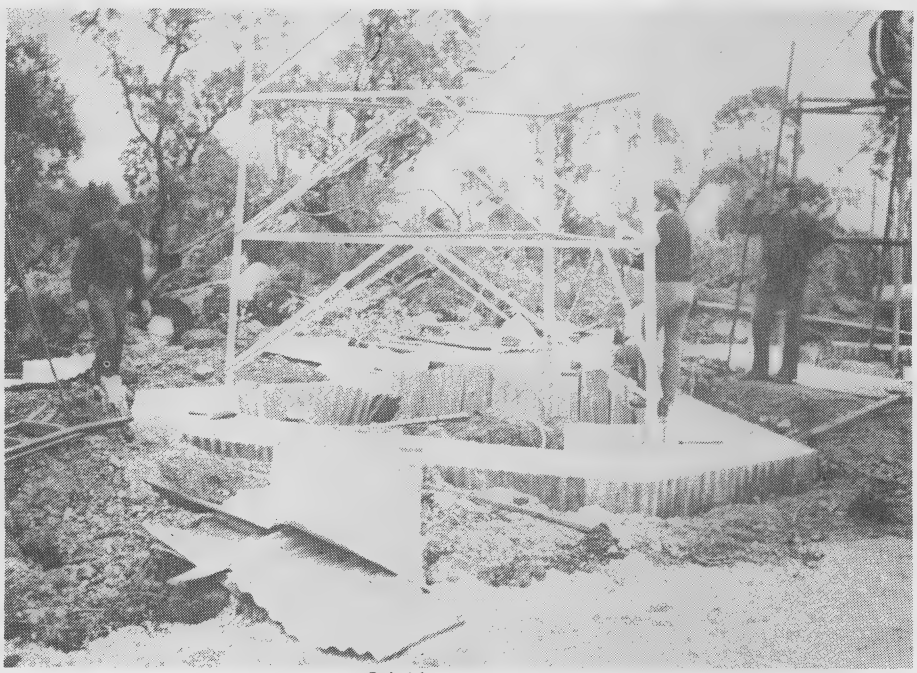
"Ticki" gets a hat.

VK6UU VK6YL, Bob, VK6YS, VK6ZBI, VK6ZBI, VK6ZCK, VK6ZF, VK6ZGA, VK6ZHV, VK6ZIB, VK6ZJR, VK6ZKV, VK6ZLT, VK6ZMB, VK6ZBG, VK6ZRE, VK6ZRR, Peter, VK6ZSE, VK6ZST, Martin and friend Mark from Scalar.

We would like to thank the following, together with many of our members listed above, for their donations:—

Pioneer Quarries, especially George and Phil, Cockburn Cement, Swan Portland Cement, Cement and Concrete Association, Delta Concrete, Scalar, A & M Wholesalers, Ian and Kay More, VK6ABR, VK6EV, VK6IO, VK6NDJ, VK6TO, VK6UN, VK6YE, VK6ZJS, with apologies to anyone we have missed. To all those who purchased "Pet Rocks", to members of the WA Repeater Group and all amateurs and families, we say thank you for your support.

In conclusion, may I say that it has given me great pleasure to be the co-ordinator of this wonderful project — thank you. ■



Crinkle cut concrete.

QSP

TOWNSVILLE

Townsville, the second largest city in Queensland, has a population of 126 licensed amateur radio operators. The Club Station VK4WIT is on air every Sunday at 09.30 GMT, 3.605, and 22.30 GMT on Saturday at 28.410. That is, of course, Sunday 8.30 a.m. It also operates several stations throughout the year on all bands during contests, field days and JOTA.

TARC meets on the 1st and 3rd Tuesday of the month to conduct business and social events. Guest lecturers are featured at general meetings, particularly from James Cook University Physics Section.

The Club maintains a 2 metre repeater on 146.700 MHz, a 6 metre beacon on 52.440 MHz and plans a 10 metre beacon on 28.270.

This year the biennial North Queensland Convention will be an International Convention, and has been designated as the Queensland Convention by the WIA (Queensland Division). Invitations have been extended to ham radio operators in many countries, including the USA, NZ, Germany, Italy and of course England. Any hams who wish to attend should contact me at my QHT.

Roger VK4CD, President, Townsville Club.
(From "Jimmy", July 1981.) ■

NETHERLANDS QSL BUREAU

DXers will wish to know the address of the Dutch QSL Bureau if they wish to send QSL cards for Netherlands contacts. It is PO Box 330, 6800 AH Arnhem, The Netherlands. ■

If you have let your WIA membership lapse in the past year or two, why not seek reinstatement now — just look at what you are missing.

15,000 licensed amateurs in a population of 15,000,000 is a tiny percentage. One strong voice, the Wireless Institute of Australia, carries weight — much more weight if all amateurs join as members.

Andrews Communications Systems

WHERE YOUR DOLLAR BUYS MORE

DIRECT IMPORTER OF QUALITY COMMUNICATIONS EQUIPMENT

KENWOOD TS-530S

- 160-10m inc W.A.R.C., SSB/CW modes.
- I.F. shift, VOX, N.B., RIT, XIT, mic gain

NO RIP-OFFS HERE

A.D.P. **$749**

WE WILL NOT BE UNDERSOLD ON KENWOOD.

KENWOOD TS. 130S $650 A.D.P.

- ★ R-1000 Receiver (no FM or optional Memory) **$469** A.D.P.
- ★ TS-830 M HF SSB Transceiver **$999** (TS.830S **$985**) A.D.P.
- ★ TR-7850 40 w min. FM 2m Transceiver **$469** A.D.P. in stock.
- ★ TR-7730 2m FM 25 w Transceiver in stock at **$349** A.D.P.
- ★ TR-9500 UHF all-mode Mobile in stock at **$595** A.D.P.
- ★ DM-81 Dip meters **$99** ★ AT-130 tuners **$115** A.D.P.

YAESU FT-290R

All-mode 2m portable

Hottest 2m all-mode!

Call for our low price **$395**

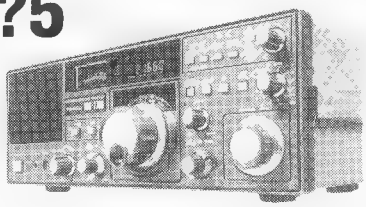
PLL with LCD display and 10 mem. channels. SSB/FM/CW 2.5 w. Supplied with scanning mic. (FT-690 R 6m version avail. **$339.**)

NEW YAESU FRG-7700 "SW"

HIGH PERFORMANCE ALL MODE SHORT-WAVE RECEIVER.

$4?5

Why pay $495? Call for our low price. AC/DC

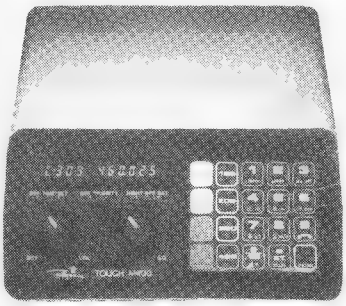


Features . . .

- ★ 2-29.99 MHz
- ★ AM FM-SSB-CW.
- ★ 3 AM Bandwidths
- ★ Digital Display.
- ★ Optional 12 ch memory $139.
- ★ Front panel speaker.
- ★ Opt. ant. tuner $69.
- ★ Opt 6m/2m/Air. $119.

REGENCY "TOUCH" M400E

DIRECT IMPORTER



$419 FREE P&P

- ★ 30 Channel VHF/UHF scanning receiver!
- ★ EXCLUSIVE 5 kHz Channelling on VHF Bands! (M100E $36)
- ★ Variable search steps.
- ★ Covers 66-90MHz, 144-174MHz & 440-512MHz
- ★ Touch tone programming. AC/DC. Digital clock, etc

LATEST YAESU HF-VHF-UHF EQUIPMENT

Please call for the best prices in Australia on . . .

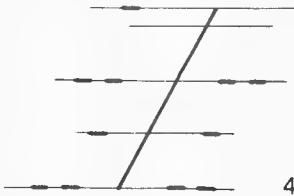
- ★ FT707 Best selling HF SSB transceiver ... **$750, CALL**
- ★ FP-707 power supply **$170,** FC-707 tuner **$146 CALL**
- ★ FTV-707 R transverter, opt 6m or 2m or 70 cm ... **$145**
- ★ FT-101ZD HF SSB Txcvr., Mk. 3 model, rejection **$925**
- ★ FT-107 M/DMS inc. AC, **$CALL, FT-ONE** coming . . .
- ★ FT-208R New LCD 2m FM hand-held in stock **$369**
- ★ FT-708 R UHF LCD FM hand-held, available at .. . **$355**

All-mode FT-680 R 6m, FT-480 R 2m, FT-780 R 70 cm

Bearcat® 220 FB $475

NEW CE-35LX TRIBANDER!

Delivers maximum gain on 22'6" boom



Full size 10 m reflector

$319

Electrically 4 el on 10m 4 el on 15m and 3 el on 20m

CE-33 **$249,** CE35DX **$299,** CE5B in stock.

MIRAGE 2m LINEARS

- ★ B1016, 10W in, 160W out **$339**
- ★ B108, 10W in, 80W out **$225**
- ★ B23, 2W in, 30W out **$119**

Compare and you'll choose MIRAGE

DMI FREQUENCY METERS

D612 1.2 GHz, 0.2 ppm . **$329**
D500 500 MHz, 1 ppm **$199**

SOLID-STATE HF LINEAR AMPLIFIERS

TP-500, 500w pep o/p, rx. pre-amp, only 10-20 w/drive needed, 3 levels, 3-30 MHz, 40A av. at 13.8V **$450**

TP-350, 350w pep o/p, rec pre-amp, required 10-30 w drive, 3 pwr. levels, uses 4 x MRF454s, only **$325**

TP-200, 200 w pep o/p, rec pre-amp, 10-20 w drive required, only . . **$185**

Palomar TX-200, 4 levels, pre-amp on receive, TVI filter fitted, only . . **$219**

CALL (02) 349 5792 or 344 7880 NOW!

SHOP 7, GARDEN ST, MAROUBRA JUNCTION, SYDNEY N.S.W.

(near corner of Garden St. and Maroubra Rd)

THE MAIL ORDER SPECIALISTS Write to: P.O. BOX 33, KENSINGTON N.S.W. 2033

The world of Vicom

Vicom International Pty. Ltd.
57 City Road
South Melbourne
Victoria, 3205
Phone (03) 62 6931

339 Pacific Hwy.
Crows Nest. NSW.
2065
Phone (02) 436 2766

Authorised Dealers
N.S.W.
Newcastle:
Elektron 2000
26 2644
Wagga: Rivercom
21 2125
W'Gong: Macalec
29 1455

Queensland
Brisbane: CW
Electronics
397 0808
Cairns: GCG
Communications
54 1035
Gold Coast
Amateur's
Paradise 32 2644
Townsville: Robco
Equipment 72 2633

Victoria
Melbourne
Eastern Communications 288 3107
Moe: Codlin
Communications
27 4516
Hamilton: Hamilton
Electronics 72 3333
Ballarat: Wecam
39 2808

South Australia
Adelaide:
Compucom 43 7981
I.C.S. 47 3688
Mt. Gambier Set
Services 25 2228

Western Australia
Perth: Willis
Electronics 21 7609
Netronics 46 3232
Kalgoorlie: Hocks
TV 21 1906

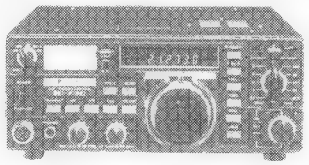
Tasmania
Launceston:
Gelston 44 3882
Advanced
Electronics 31 7075
Hobart: Harvey
Skegg 43 6337
Burnie: VK
Electronics 31 1708

ANTENNAS/ ACCESSORIES

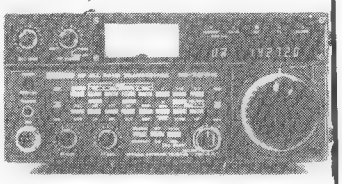
AS-203W
ASAHI full size 20m beam, 2 el (2 only) $237
AS-NK
ASAHI bumper mount kit $26
BM-1
HUSTLER universal bumper mount $28
FD30LS
DAIWA low pass filter 32MHz Fc. 200W $25
LDS-1
MARK light duty antenna spring $10
RM40
HUSTLER 40m resonator antenna $30
10Y/2M
JAYBEAM 10 el. 11.4dBd 2 metre beam $96
5Y/2M
JAYBEAM antenna 5 e. 7.8dBd. 2 metres $43
8Y/2M
JAYBEAM 8 el. 9.5dBd. 2 metre antenna $57
HW-40
MARK HF helical whip 7.07Mhz $33
PBM18/70
JAYBEAM 18 el. 14.9dBd. 70cm beam antenna $105
VAB/2/10
VICOM beam antenna 2m. 10 el. 12dB gain (3) $83
VAB/2/5
VICOM 2B beam. 2M. 5 el. 8dB gain. 500W $39
VAB/70/16 VICOM 16 el. LP/YAGI. 70cm antenna (inc balun) $65
VAW/2/4F
VICOM 2M ¼ wave fiberglass whip 146.5MHz $5
VAW/2/4S
VICOM 2M ¼ wave s-steel whip 146.5MHz $5
VAW/2/5
VICOM 5/8 fiberglass whip tuned 146.5MHz $13
VAW/2/B
VICOM bel ing-lee base $4
V4JR
NAGARA 40-10M trap vertical antenna $115

ICOM TRANSCEIVERS

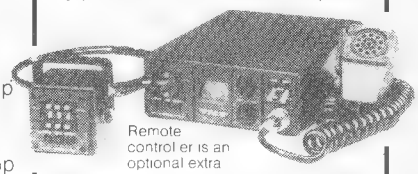
IC730
Transmission in SSB and AM mode; twin VFO's; memory function; tuneable in 1kHz, 100Hz and 10Hz steps with a dial-lock feature; adjustable power output on sideband; 100 watts output on all mains; dual time constant noise blanker switch. **$899**



IC720A
Icom's deluxe HF transceiver – for the amateur with an eye for technical excellence. Using the latest technology, this fine transceiver is ideal as a base station. And your new IC720A comes complete with a VICOM 12 months warranty too. $1349

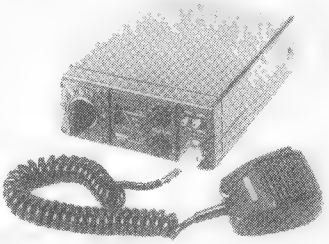


IC22U
ICOM 2M mobile transceiver $329

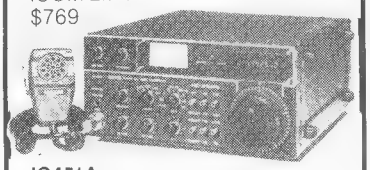


IC22S
Australia's best selling 2m Rig. Over 4600 sold in Australia.
$299

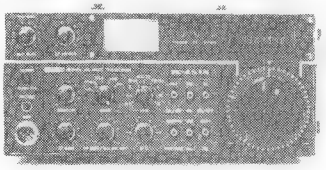
ICOM



IC251A
ICOM 2M all mode transceiver $769

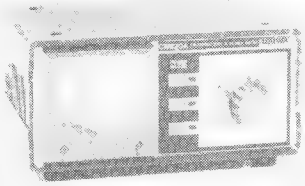


IC451A
ICOM 70CM transceiver AC/DC **$939**



SWR/PWR METERS & ANTENNA TUNERS

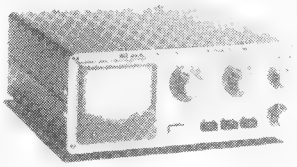
CN620A
DAIWA quality SWR/PWR meter 1.8-150MHz x-needle $94



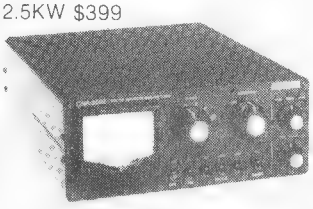
CN630
DAIWA SWR/PWR meter x-needle 140-450MHz $129
CN650
DAIWA SWR/PWR meter x-needle 1.2-2.5GHz $196

CNA1001
Daiwa's quality automatic HF Antenna Tuner – Includes new WARC bands. **$269**

DAIWA

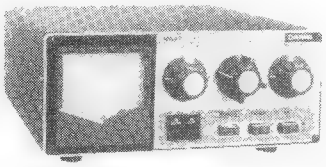


CNA2002
DAIWA auto antenna tuner 2.5KW $399



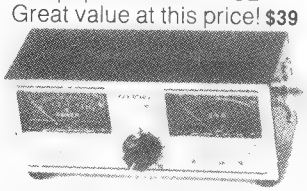
brings the world to you.

CNW218
DAIWA antenna tuner incl SWR/PWR meter $164
CNW418
DAIWA antenna tuner HF bands $189

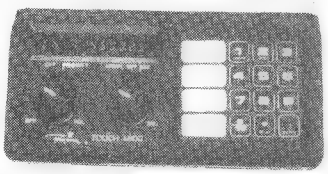


SW110A
DAIWA SWR/PWR meter 1.8-150MHz $82

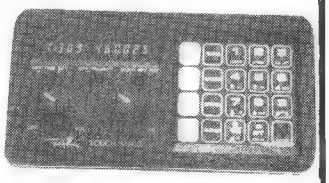
VC2
The popular Vicom VC2. Great value at this price! **$39**



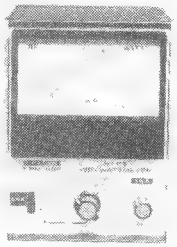
REGENCY SCANNERS
M100EO
REGENCY 10CH scanner AC/DC $399



M400EO
Listen to police, ambulance, fire brigades, hams. AC/DC operation (includes Australian approved AC adaptor). 30 channels (no crystals required). Full scan 60-90MHz, 144-174MHz, 420-512Mhz. **$449**

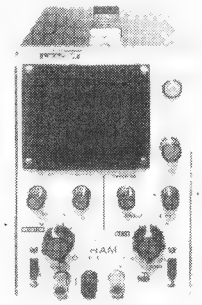


OTHER ACCESSORIES
LDM815
LEADER d p meter $99
LPM885
LEADER SWR/Watt meter $102



RM940
DAIWA nfrared mobile mic $139
VM-1
VICOM noise-cancelling mic, low 2 $16
LA31
LEADER nam scope adapter $31

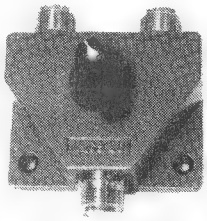
LBO310HAM
Ideal as a general CRO for the shack. Also doubles as a monitorscope to check your transmitted signal. Sensitivity 20mV, bandwidth 4MHz, screen 3". $339



T-25
VICOM dummy load 3.5-500Mhz, 25WCONT. $16

COAX RELAYS AND SWITCHES

CS201
Quality 2 position switch.
$24



CS401
DAIWA coaxial switch 4 positions $69
CX120P
VICOM coax relay 150W, to 2.5GHZ 12V DC $24
CX230
VICOM coax relay 300W, 1.5GHZ, 12V DC $43

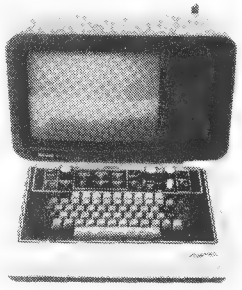
ICOM ACCESSORIES
IC2KL
ICOM solid-state linear amplifier 1KW $1599
IC551D
ICOM 6M transceiver excl FM/PBT/VOX $789
ICHM10
ICOM up/dwn scan mic for 25A/260/255 $45

MORSE KEYS
EK121
KATSUMI electronic keyer with dot memory $72
EK150
KATSUMI electronic keyer $143
HK702
Morse key, de uxe with marble base $51
HK706
Morse key, operator's model $23
HK707
Morse key $33
HK708
Morse key, economy $22
MK1024
KATSUMI electronic keyer programmable $235
MK701
Morse paddle, side-swiper $53

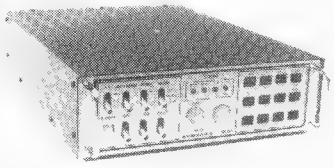
Vicom actively sources the latest products from overseas by representing Icom, Daiwa, Regency, Jaybeam, Tono and others. Vicom's staff have genuine product interest and product understanding. Vicom has one of the best equipped service and repair centres, and its products carry a one year warranty.

RTTY EQUIPMENT PRICES SLASHED!

7000E
TONO communications computer ~~$1199~~ Reduced to $899
Screen s an optional extra



350
TONO RTTY equipment ~~$729~~ Reduced to $479



HC800
TONO DOT matrix printer ~~$1245~~ Reduced to $1145

A Tale of a Tower
— Further Information on the VK5JG Design

In the August 1981 issue we published a design for a simple tower and mast entitled "Mounting a Quad Antenna" by John A. Gazard VK5JG. Resulting from comments by the draftsman we added some footnotes based on the information initially supplied. Now, in the light of more data from the author, we see that some of our suggestions introduce more problems than they solve, and others have already been taken into account. So much useful information is contained in the letters from VK5JG that we now publish the correspondence essentially unedited.

The Editor,
Dear Sir,

I have the following comments to make on the "Editor's Note" which followed my article "Mounting a Quad Antenna" in August AR.

(a) **A locking pin is not essential.** The winch and cable are designed to carry the light load of the top mast and quad (80 lbs.) at all times. Even if the mast were to fall the top flange which carries the quad would come to rest on the top of the sleeve and no damage would be done so the word 'safety" is quite out of place.

The locking pin which you have added to my design would prevent the beam turning and would make the tower useless. It would take two men to remove the locking pin as you have shown it — one to climb the mast and the other to operate the winch. This would defeat the whole object of the design, which is to allow instant raising and lowering.

(b) A two-sleeved bearing would be harder to set up and align. An 18 in. bearing has proved ample in practice.

(c) There is no need for a thrust bearing at the bottom of the mast. The arrangement with the mast hanging on the wire operates well and the mast is easy to rotate. A thrust bearing is outside the scope of amateur manufacture.

(d) The calculated load on the holding down bolts is less than 600 lbs. This would require a bolt cross section of 0.06 sq. in. at a stress of 10,000 lbs. per sq. in. A ½ in. bolt has twice this area at the bottom of the thread.

(e) The 6 in. dia. 3 ft. 6 in. deep concrete footings are ample. I calculated that the uplift on the windward side bolts with the maximum wind load is less than 600 lbs. My experience as an engineer on civil construction works has shown that concrete rammed into a bored hole as above can easily withstand this load.

I was able to prove this when I tried to remove a footing to shift a tower to another site. I excavated around the footing until only two feet remained in the ground. I saturated the hole with water overnight and using a lever by which I could apply an upward force of 500 lbs. I was unable to shift the footing.

A footing three times the diameter would require nine times the concrete and would weigh 860 lbs. which is 260 lbs. more than is necessary without allowing for the grip of the earth.

(f) If the base was made a metre square and the tower was uniformly tapered the tower diagonals would have a length of about 4 ft. and as a ¼ in. rod would not take any compression load at this length the diagonals would have to be increased to ½ in. pipe or else cross diagonals of ¼ in. plus horizontals of ½ in. pipe would be required.

Whatever the spacing of the verticals the same total length of diagonals is required so that the uniformly tapered tower would cost more in material and as each diagonal would have to be separately cut, mitred and hollow ground, would be more difficult to set up.

The diagonals for the 8 in. spaced verticals are zig-zag bent from a 20 ft. lengh of ¼ in. rod using a jig. This operation takes only a few minutes and then the diagonals (in one piece) are sprung in between the verticals and welded.

The uniformly tapered tower would require a separate ladder and the winch would require a base welded to the tower.

I have made or helped to make four of these towers for friends and after use from two to four years no disabilities have been found. I am disappointed that your Technical Editor and Draftsman, who do not appear to have any structural qualifications or experience should alter my design to make it unworkable and make suggestions which have no value.

Yours faithfully,

J. A. Gazard, B.E. (Civil).

☆★☆

Mr. J. A. Gazard VK5JG,
Dear Sir,

We agree with you that you have some cause for complaint about the diagrammatic addition of a locking pin to your mast/tower design as published in August AR. However, it was not intended to be more than a general indication that in the draftsman's opinion some such device was necessary. Further correspondence with him would have delayed publication by at least another month. We agree that as indicated on the drawing the device would be unworkable. He made a number of additional comments on the design, about which he was obviously unhappy. These were borne out by a few quick editorial calculations and resulted in the postscript to which you have objected. I would like to discuss the subject in rather more detail, taking the various points in the same order as you have raised them.

(a) A locking device of some kind, mainly against rotary forces, is usually needed on a beam system, if for no other reason than to reduce loads on the rotator in strong winds. It could be controlled from the ground by a lanyard, or perhaps electrically actuated. With your design it could be safer not to rely entirely on the winch cable for support, particularly if the mast were left fully up and strong winds developed while it was unattended. If the mast did fall, it would "come to rest" with an impressively high shock load.

(b) The exact form of top sleeve(s) is dependent on antenna wind loading; see later.

(c) The thrust bearing envisaged at the base of the mast would allow it to turn without the cable wrapping around it.

(d) The load on the hold-down bolts depends also on wind loading. See later.

(e) The mass of the footings should be commensurate with the loads on the hold-down bolts. Agreed that the "grip of the earth" is a significant bonus over mass alone, but difficult to estimate, dependent on soil properties, and probably best neglected in a conservative design.

(f) We agree that more material would be required for a uniformly tapered tower, and that fabrication would be more difficult. This was only a suggestion, based on the draftsman's comment that "a bend in the pipe here is a potentially weak point".

Now for some pessimistic assumptions. First, it cannot be guaranteed that the mast will always be lowered into the tower before a storm strikes, so its design should be adequate to survive the strongest likely wind while fully erected. Second, since it might be constructed and erected in any part of Australia (or elsewhere) the design wind velocity should be at least 80 m.p.h. Some State building codes may well call for 100 or 120 m.p.h. The minimum permitted anywhere in Australia (for 50 year expected life) is 27 metres/sec. (97 km/hr. or 60 m.p.h.) and in most places the recorded maxima are at least 40 m/s (90 m.p.h.). Australian Standard 1170, part 2 (1975), covers the subject in great detail. Further, although the antenna(s) you have used on the mast may have been relatively small, in the absence of any direction to

the contrary someone may try to put two or three good sized beams on it for several bands.

To plug in some figures (using Imperial measurement since they were those of the original drawing, later metricated): The flat-plate equivalent windage area for the antenna(s) plus mast might be up to about 5 sq. ft., effectively at the top of the mast 25 ft. up. Wind load at 80 m.p.h. ($0.0042AV^2$) = 135 lbs. Moment arm at base 2½ ft. so uplift on bolts is 10 x wind force, i.e. 1350 lbs. or 675 lbs. per bolt. This should be the weight of each footing (rough agreement with your stated 600 lb.). But 6 in. dia. x 3 ft. 6 in. deep is only 0.7 cu. ft. Density of concrete 137 lb./cu. ft., so weight of footing just under 100 lb. Very much less than bolt load.

Bolt strength. A ½ in. Whit bolt has root cross-section of 0.1215 sq. in., so tensile stress = 675/0.1215 = 5600 p.s.i. Agree this is not excessive, i.e. ½ in. or 12 mm bolts OK. I think this error came about because the draftsman did not get a copy of your text, and your drawing did not indicate the mast was square; he thought it was triangular, with only one bolt.

Top sleeve bearing. Again, your drawing did not clearly show it to be 18 in. long, nor specify where and how attached to tower. If welded only at the centre of the sleeve the weld stresses could be excessive. Incidentally, the mast base moment (12 x 135 = 1600 lb. ft.) will produce a maximum stress in the pipe approximating mild steel yield point of 30,000 p.s.i., for a pipe section modulus of 0.66 $in.^3$. In other words the mast would be on the verge of failure if antenna area is 5 sq. ft. in an 80 m.p.h. wind. It might be on your own head if you don't let it down before the big storm!

In conclusion, I am sorry for the confusion which has arisen. I think eventual publication of your letter, this reply, and perhaps a little more information as well would help many tower builders. Regarding your final comment, neither the draftsman nor myself is as unqualified as might appear. He is based in Canberra (the distance does pose a liaison problem) and describes himself as having "had reasonable experience in the building trade, involving steel fabrication", although not a "structural engineer". My own backyard boasts a 50 foot tower and mast very strongly resembling yours in shape and materials. Of my own design and construction, it has supported at least three and sometimes four antennas and still stands after 20 years. It has a lanyard controlled locking device, but is not designed for quick raising and lowering.

73. W. M. (Bill) Rice, B.E. (Elec.),
VK3ABP, Technical Editor. ■

☆★☆

The Technical Editor, 4/9/81.
Amateur Radio,
Dear Bill,
Thanks for your letter of 2/9/81. I was very upset when I read the editorial comments following my articles on the tower and would have preferred it not to have been published if those comments were to be added.

However it is too late now and I would ask that as well as printing my letter you acknowledge in the next issue that the addition of the locking pin was not part of my design and that I do not agree with the remarks.

Before referring to your points "a" to "e" I would point out that the whole idea of the design was that a light neat structure could be built if it was raised only when actually in use and I mentioned that the top mast would not stand up to gales in the raised position. The 2 in. pipe has an OD of 2.375 in. and ID of 2.055 in. I calculate the modulus of section as 0.577 $in.^3$ and with an area of 4.5 sq. ft. for the quad (neglecting the mast) at a height of 20 ft. above the sleeve the moment on the pipe would be 21600 in. lbs. and the stress in the steel pipe 37,000 p.s.i.. slightly higher than your calculated 30,000.

The top mast is so easy to raise and lower that we (the other users and I) raise it when we switch on the rig and lower when switching off. This raising and lowering might be considered a disadvantage but it is a trade-off for a neat and cheap construction.

Referring to your points (a), (b) and (c):

(a) A quad is symmetrical about its rotating axis and has very small rotating forces due to wind. One tower had an electrical rotator with a brake which easily held the quad on the mark. The remainder constructed were rotated by hand from a wheel (sketch A). This wheel had holes in the rim at 15° intervals and a pin was dropped through to hold the quad in the required direction when operating. Some users leave this pin in when the mast is lowered but others, including myself, let the mast float with the idea that it will take a position involving least wind loads.

The fact that the winch wire winds around the mast prevents it from turning more than about 180 degrees under wind load, thus preventing breaking of the feed line.

(b) I found it difficult to obtain a tube of exact size for the sleeve. I have used an oversize tube and lined it at each end to fit but have found the most convenient method is to make a box of 4 angle irons as per sketch B.

(c) The winch cable is very lightly loaded (less than 80 lbs.). The winch ratchet wheel is 4 in. diameter of 3/16 in. plate, with 6 teeth ½ in. deep. It has proved quite safe in use and operates as a friction free thrust bearing. The only risk is that one might let go the handle when lowering the mast. However the way the ratchet and pawl happened to be made the ratchet teeth knock the pawl back into operation if the mast is lowered too fast. Sketch C.

(e) I know that "the grip of the earth" cannot be calculated but once in my career I had to carry out tests on tension piles and my experience in pulling out poles with a crane has shown that the earth grip is always considerable and sufficient in this case. My attempt to remove a footing was further proof. In calculating the uplift on the footings it is necessary to deduct the deadweight of the tower and quad on each leg from the wind moment tension.

(f) The bend in the pipe was made by cutting out a notch before bending and then welding over the cut and laying on a large pallet. This gives a sharp bend and, as the horizontals and diagonals meet at this point, there is no weakness. The calculated stress in the ¾ in. pipe with mast lowered is about 6,000 p.s.i. at this point. Sketch D.

I had considered making a full drawing but as I am retired and have no access to drafting equipment I made a sketch showing cross sections and all details such as winch, ratchet, etc.

However, this would have needed so much space that I thought it better to supply sketches to the few who might require them for construction. They could be photo-copied and would not involve much work; but it appears now that it would have been better to supply all the details for publication.

73. John Gazard. ■

(Sketches overleaf)

THE VK3BWW FORMULA FOR DX SUCCESS!!

HIGH QUALITY AT LOW COST

BEAMS

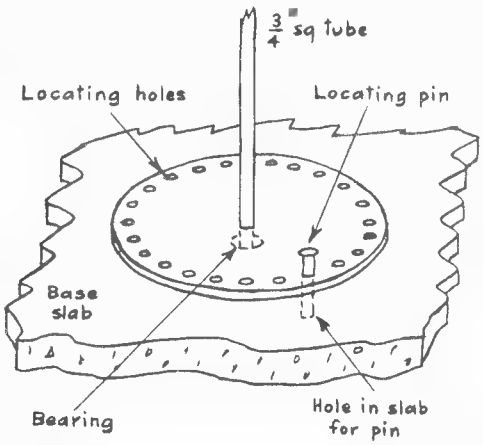
3 EL 10 & 11m	**$69.00**
3 EL 15m	**$77.00**
3 EL 20m	**$149.00**
6 EL 6m	**$102.00**

DUOBANDER
3 EL 10m, 3 EL 15m **$139.00**
Prices include Gamma match

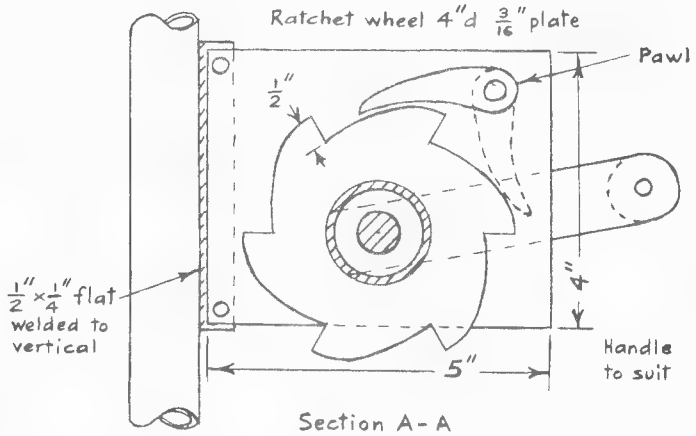
Our beams are easy to assemble and adjust. Entirely **NEW** CONCEPT — **NO** NUTS OR BOLTS.

Spare parts, elements, booms and gamma matches available.
Plus Freight

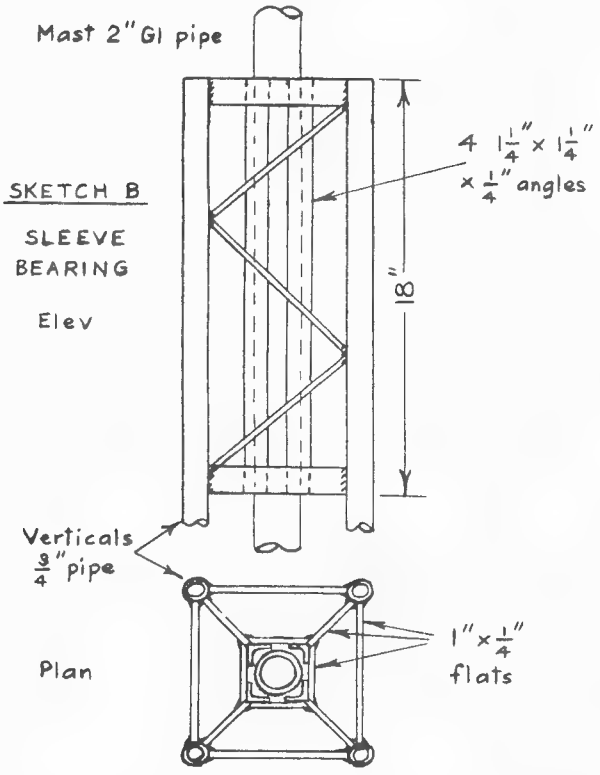
For further information
PLEASE RING (03) 366 7042
VK3BWW
WERNER & G. WULF
92 LEONARD AVENUE
ST. ALBANS, VICTORIA 3021

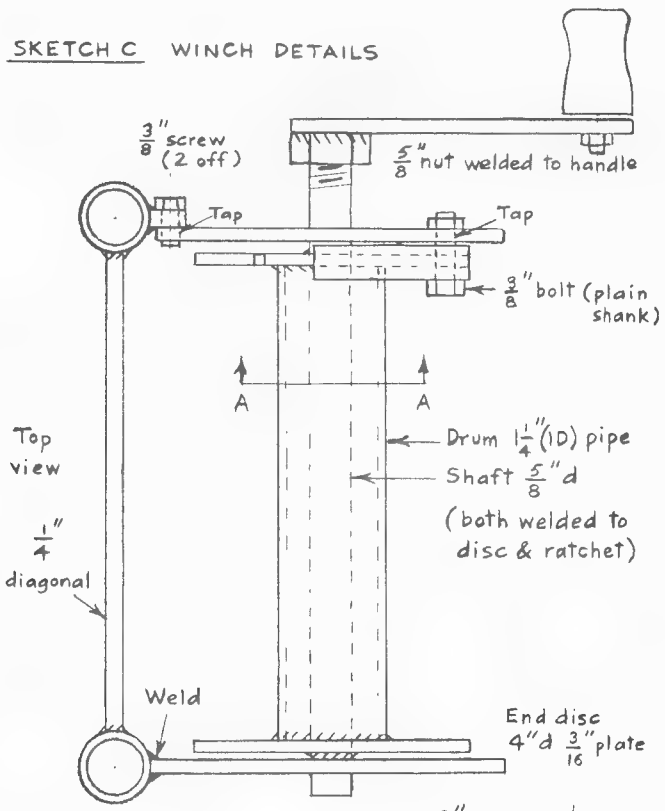


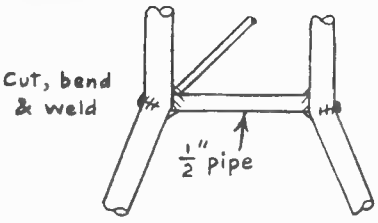
SKETCH A ROTATING HANDWHEEL (wood or metal)



SKETCH C WINCH DETAILS



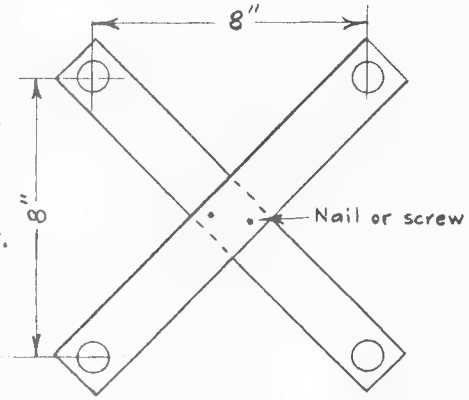




SKETCH D BEND DETAIL

SKETCH E WELDING JIG

3 reqd. 3" x 3/4" softwood.
Holes neat fit 3/4" pipe.
Knock along as welding progresses, then break out.



YAESU — BREAK THE CODE AND SAVE —!

YAESU FT208R FM Hand-held
Only $ . . . - - / . . - - - / - - - - . / *OR LESS*

YAESU FT290R All-mode Portable
Only $ . . . - - / . . . . . / . . . . . / *OR LESS*

YAESU FT480R All-mode Mobile
Only $ . . . . . / . - - - - / . . . . . / *OR LESS*

YAESU FL2100Z 1.2 kW Amp.
Only $ . . . . . / . . - - - / . . . . . / *OR LESS*

YAESU ACCESSORIES
$ - . - . / . . . . / . / . - / . - - . /

FT707 — Biggest selling HF SSB Mobile Transceiver
Only $ - . . . . / - - - - . / - - - - ./ *OR LESS*

FT107 M/DMS SSB-HF Transceiver
Still only $. - - - - / . - - - - / - - - - . / - - - - .

FT-ONE — DUE SOON

All Yaesu equipment is covered by a full 12 months warranty!!! (Parts and Labour)

TR2500 KENWOOD HAND-HELD NEW RELEASE **PRICE $299.00**
YES ONLY $299.00
For latest Kenwood Due soon Very soon

FACTS FOR THE AUSTRALIAN AMATEUR

All our **Kenwood** equipment is manufactured by **Trio-Kenwood Corporation (Tokyo) Japan** and our replacement parts are supplied by Trio-Kenwood Corp. (Tokyo) Japan. All our equipment is branded "KENWOOD" and all equipment includes an original English manual. Our photo-copy service manuals are only $5.00, not $15.00, and if this is not enough, we can supply full original **colour** manuals. Yes! Kenwood colour service manuals

FACTS ABOUT PRICE AND SERVICE

BECAUSE we sell equipment that is imported from the factory in Tokyo we are able to offer you huge savings. 100% of one brand alone is imported direct from Tokyo.

BECAUSE we deal directly overseas we are able to tell you of any new models often long before other local distributors and retailers are able to inform you.

BECAUSE we deal directly we are able to obtain parts with ease, which of course must mean we are in a better position to carry out service/warranty, etc.

BECAUSE we usually have the latest service bulletins and of course the parts, we are able to service warranted equipment with an average delay of only 5 days. (Not many can match that service — can they?)

BECAUSE our equipment is in factory sealed cartons, we believe this to be the main reason our service return rate is only 2% and, in any case, if the final quality control check by the manufacturers is not a good enough guarantee, then the BRAND should obviously be withdrawn from the Australian Amateur market until it is suitable. In other words — If the factory can't build them properly — no one can.

NOTE: If the equipment is removed from the carton, how do you know where it's been or what it's done or what's done with it? In our opinion, quality manufactured equipment need not be tampered with.

BECAUSE of all these facts, we have one example to prove the rule.

EXAMPLE: On Kenwood equipment alone not one — no, not one of the transceivers sold by this company in the last 40 weeks up to the lodging of this advertisement with AR magazine, had been returned for service under warranty, or out of warranty, either. We firmly believe this is because our equipment is sold in non-tampered with factory cartons. We believe it is your right as an Amateur and as a customer to receive your purchase in new, untouched condition. If you want your equipment tampered with, touched or on air tested, then we will be **unable** to supply you. We believe the Amateur to be the best judge of what is fit for him to use.

DON'T YOU?

WARRANTY

BECAUSE of the above proven reliability of Kenwood equipment sold by us over the past 40 weeks, we would like to introduce to you our **NEW — 12 MONTHS WARRANTY** on all of our Kenwood products. Yes — now all our Kenwood equipment is covered by our **12 months warranty.** Can you afford to buy your Kenwood elsewhere?

PRICES SUBJECT TO CHANGE — BUT NOT OFTEN

Dear Amateur,

It's definitely worthwhile to ring our company LAST. If you write or phone we will give you a price, you definitely don't have to call in person to get our best price. Remember, if we can sell it to you cheaper WE WILL.

THE SNOWY RIVER COMPANY P/L.
MAIL ORDER — P.O. BOX 227
GREENACRE 2190, N.S.W.
All equipment in factory sealed cartons.
9-5 MON. TO FRI — 9-12 SAT.
PHONE: (02) 709 1557

"AMATEURS NOTE"

Some amateurs think that R.R.P. means "Recommended **Rip-off** Price". To avoid further confusion, we will now sell at A.D.P., that is —

"AMATEURS' DISCOUNT PRICE".

Remember — Why pay more than A.D.P. (R.R.P. is too much).

A.D.P. is only a recommended price. There is no obligation to comply with such prices. Dealers are quite free to sell at lower prices if they so wish.

Hams pay A.D.P.	EGGS	
"AMATEURS'	PAY	R
DISCOUNT	TOO	R
PRICE" — A.D.P.	MUCH	P

Kenwood Price List	HAM(S) and EGGS	
TS130S Non-Woodpecker	$650 A.D.P.	$847 R.R.P.
TS830S	$985 A.D.P.	$1095 R.R.P.
TS830M	$999 A.D.P.	Who knows
TS130S	$689 A.D.P.	Who knows
TS530S	$749 A.D.P.	$833 R.R.P.
TS180S	No longer in production	
TR2400	No longer in production	
TR7850	$469 A.D.P.	$495 R.R.P.
TR7800	No longer in production	
TR7730	$349 A.D.P.	$379 R.R.P.
TR9500	$595 A.D.P.	$735 R.R.P.
TS600	No longer in production	
TS660		New release
R100	$469 A.D.P.	$527 R.R.P.

Most current list available at publication. Includes 2½% Sales Tax increase. Does not include 2% Tax increase.

FORWARD BIAS

(VK1 DIVISION)

SO YOU NEED A TOWER

In the ACT the approval of towers for amateur and other radio purposes is the responsibility of two government authorities:—

The National Capital Development Commission is concerned broadly with the environmental impact aspects of appearance and siting of the proposed structure. Generally such towers must be free standing, at the rear of the dwelling, and as inconspicuous as such a structure can be made. While not essential to the approval of the application it is a good plan to have briefed your immediate neighbours with full details of the proposed structure and, if possible, obtain from them a letter indicating that they have no objection.

The Building Section of the Department of the Capital Territory is responsible for the approval of the engeering aspects of the proposed tower and antennas it will carry including structural design, vertical and lateral stresses, materials to be used, foundations and anchoring details, etc.

Each application is treated individually — there are no officially approved types of tower, although your application will have a better chance of success if it is a type that you know to have been previously approved in the ACT. If you propose to erect a tower you should speak first to friends who have gone this road and then with the Building Section before you outlay any money. The final hurdle and, if you are like me the hardest of all to clear, will be in obtaining the financial approval of the Department of XYL.

MULTICULTURAL TV TRANSMISSIONS

It is noted that there has recently been a call for the introduction of Multicultural TV to serve the ACT and the surrounding areas. On the basis that we are TV viewers, as well as radio amateurs, we should perhaps take the view that such broadcasts would make a welcome addition to the rather sparce TV fare offering to viewers in this area. However, having in mind the mutual interference problems existing between the internationally unstandard Channels 0 and 5A and our 6 and 2 metre bands it is the contention of the VK1 committee that ALL new Multicultural TV transmissions should be confined to the UHF TV channels as originally intended.

This matter will be represented by VK1 to the Minister for Communications — the local House of Assembly — local Federal Members and Mr. Al Grasby.

I wonder if it would be possible to convince the TV receiver manufacturers that there is a dollar in it for them if MCTV transmissions are confined to the UHF bands?

QSL PSE/TKS

Have you ever given more than a passing thought to the amount of work — and cost — that goes into the operating of your QSL Bureau?

Sorting the inward cards is a big job in itself, but I'm glad that I don't have to do all that sorting, wrapping, addressing and posting the vast number of outward QSL cards.

Our most recent despatch overseas and local cost the Divisions about $105. Sure, that's small cheese by VK2 or VK3 standards, but a significant cost for VK1.

In the past, and I can't for the life of me see why, VK1 has handled outward QSL cards for non-members of the Institute free of charge.

Well you guys out there, the honeymoon is over — outward cards for non-members will in future cost 5 cents each.

Quick question: Why 5 cents only on outward cards? It's the inward cards that qualify us for the awards.

DIN A4

No — it's not one of the new emission designators. It's a sheet of paper 297 x 210 mm which has been for some years the Australian standard letter size paper. It is a little bigger than the old quarto and considerably smaller than the old foolscap size papers.

But did you ever try to photocopy a foolscap sheet on to A4, without either photo-reduction or A3 capability, on your saltmine photocopier? It just can't be done.

So you scribes out there who will persist in using foolscap paper, what about you get with it and join the rest of us who have adopted decimal coins, metric weights and measures, etc.

73. VK1KV. ■

VK2 MINIBULLETIN

COUNCIL REPORT

At the September meeting, Council was pleased to welcome Albert Amateur Radio Club to affiliation with the NSW Division, making a total of 32 clubs now affiliated. The evening broadcast relays on 80m and 10m have been discontinued and the signals now originate from Dural. Thanks to Peter VK2NGK, Steve VK2BGL and members of the Gladesville Radio Club who have provided relays in the past.

UHF repeater applications from Blue Mountains Amateur Radio Club on channel 8375 and TK/Southern Highlands Amateur Radio Society on channel 8025 were approved for submission to DOC Sydney. WICEN has received permission for the use of a Chatswood site for their repeaters on channels 7150 and 8275.

Council decided to print Certificates of Affiliation for affiliated clubs. Thanks to Steve VK2VHP for designing the certificates. The Division's contribution to the Tower Fund was $650. Totals costs of the case were $3,200, most of which was raised from donations. Council would like to thank again all those who donated so generously to the appeal.

Details of three clubs affiliated with the Division:—

Central Coast Amateur Radio Club

PO Box 238, Gosford 2250.

Net: Tuesdays at 8 p.m. on 3565 kHz using VK2AFY/P.

Meetings: 1st and 3rd Fridays at Club rooms, Dandaloo Street, Kariong.

President: Terry Davies VK2KDK; Vice-President: John Pogson VK2DBC; Secretary: Suzanne Wells; Other Committee: Les LeBreton VK2AKT, Ray Wells VK2BVO, Stan Dogger VK2VFW/ZRD, Bob Leane VK2ZLV.

Magazine: Smoke Signals, published monthly.

Repeaters: VK2RAG on 6750 at Somerbsy. Time out 4m, ERP 20W. VK2RUG at Somersby. Time out 4m, ERP 3W.

Field Day: February at Gosford Showground.

Griffith Radio Club

PO Box 4, Griffith 2680.

Net: Wednesdays at 1100Z on 28.48 MHz, using VK2DBK.

Meetings: SES Headquarters, Griffith, 3rd Mondays.

President: Graeme VK2DGW; Vice-President: John VK2YEZ/NQL; Secretary: John VK2DFC; Other Committee: Leon VK2DLN; Social, VK2DIX, VK2BBL, VK2VRW; Repeater, VK2YEZ, VK2YNC, VK2ZJL.

Repeater: VK2RGF on 6850 at Griffith. Time out 3.5m, ERP 10W.

Coffs Harbour and District Amateur Radio Club

PO Box 655, Coffs Harbour 2450.

Net: Mondays at 8 p.m. on 3610 using VK2DVF.

Meetings: 3rd Wednesdays at Orora High School, Bray Street, Coffs Harbour.

Classes: AOCP and NAOCP at Orara High School Wednesdays.

President: Max Francis VK2BMK; Vice-President: Bruce Telfer VK2DDU; Secretary: Dave Harding VK2DUR; Other Committee: Margaret Nally VK2DQU, Rick Fletcher VK2BKV.

Repeater: VK2RCH on 6650 north-west of Coffs Harbour. Time out 3m, ERP 20W.

Field Day: Easter at Urunga.

COMING EVENTS

Saturday, 7th November: Divisional auction at 14 Atchison Street, Crows Nest.

Sunday, 15th November: Blue Mountains Field Day at Springwood.

Saturday and Sunday, 14th-15th November: WICEN Regional Co-ordinators' Conference.

NSW members and clubs are invited to submit news for inclusion in this column. Please address it to VK2 Minibulletin, PO Box 123, St. Leonards 2065. News for January AR should reach us by 29th November.

Susan Brown VK2BSB. ■

AMATEUR RADIO

HUGE SCOOP PURCHASE!

SAVE ON THE 'NO FRILLS' FT107

ONLY
$850.00
WHY PAY $1278?

YOU REAP THE BENEFIT

Here's your chance to up-date to one of the best transceivers in the world, at a true bargain price!

Dick Smith has just made a scoop purchase of the entire manufacturer's stock of the famous FT107M transceivers - at an incredible discount.

They have all the outstanding features that have made the FT107M Australia's most popular top-line transceiver, and include all of the current legal amateur bands. (They don't have the new WARC bands included - but why pay hundreds of dollars more for bands we may NEVER get to use?)

Hurry stocks are strictly limited - and as we bought the entire manufacturer's stock, this offer can NEVER BE REPEATED!

D-2863

SPECIFICATIONS:

Frequency coverage: 160, 80, 40, 20, 10
Modes of operation: LSB, USB, CW, AM, FSK
Input power: 240W DC (SSB), 80W DC (AM, FSK)
Sensitivity: 0.25uV for 10dB S/N (SSB/CW/FSK), 1uV, AM
Selectivity: 2.4kHZ (-6dB) 4kHZ (-60dB) SSB cont. variable from 300 to 2400Hz
Carrier Suppression: better than 40dB
Spurious radiation: better than 50dB below rated output
Power requirements: 240V & 13.5V supplies built in

THE MANY BENEFITS OF BUYING YAESU FROM DICK SMITH

- *We sell more Yaesu than anyone else: so we have the best stocks, at the best prices (tell us if we're wrong!)*
- *We have the largest service centre: if something does go wrong with your Yaesu, we can fix it fastest!*
- *We honour Yaesu's 12 month guarantee - beware of others who may offer you only a 90 day warranty.*
- *Dick Smith Electronics have over 22 stores throughout Australia - plus over 200 approved re-sellers. You're never far from friendly help.*
- *We know amateur radio - we have 32 licensed amateur radio operators on the staff including Dick Smith & Ike Bain the Managing Director.*

AND WE GIVE YOU A FULL 12 MONTH GUARANTEE!!

FINANCE TO APPROVED PERSONAL CUSTOMERS OR USE YOUR BANKCARD

CHECK THESE OTHER GREAT DEALS

Most popular communications receiver in the world!

20,000 KM RANGE YAESU FRG-7

More Yaesu FRG-7's are in use throughout the world than any other communications receiver Check these outstanding features

- Features the famous 'Wadley Loop' for rock solid stability & minimal drift!
- Triple conversion superheterodyne circuit for extremely high sensitivity with excellent selectivity (better than 0 7uV, -6dB @ 3kHz & 50dB @ 7kHz)
- Operates from 100/120/220/240V AC or 13 5V DC
- Weighs only 2kg, size 34 X 15 X 29cm
- 21C, 22 transistor & 16 diode circuitry

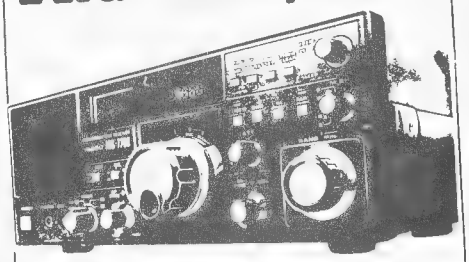
D 2850

~~WAS $395~~ LAST YEAR!

ONLY $359.00

SAVE $40

Yaesu's brilliant FRG 7700/SW



There's not much we need to say about this outstanding receiver· let the features speak for themselves

- 2MHz - 30MHz continuous!
- All mode - including FM (great with converters)
- Digital frequency readout, with digital clock
- Superbly easy to operate set pre-selector, then tune!
- Timer for tuning receiver on/off, plus control of external equipment eg (tape recorder)

D 2841

EXCLUSIVE TO DICK SMITH

NEW

ONLY $499.00

OPTIONAL MEMORY UNIT Gives you single button re-call of any of 12 chosen frequencies Great for monitoring, 'skeds etc Simple connection, instructions inc **$149.50** D-2842

The FRT 7700 is an ultra compact antenna tuner Designed to operate from 150kHz 30MHz, it will provide the proper impedance for the receiver rejecting unwanted signals Also has a built in 60dB max attenuator plus a two section lowpass filter and for rejection of strong signals above 2MHz

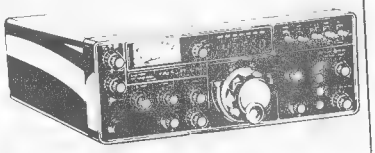
Antenna Tuner $71.50 D 2843

FRV 7700 VHF 2-6 metre converter

Increase the listening range of your FRG 7700 with this high performance frequency converter You'll be able to listen to all the amateur activity up top', plus aircraft & land mobile stations etc Makes great VHF listening!

ONLY $124.50 D-2844

TOP OF THE RANGE SSB/HF transceivers



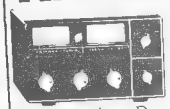
FANTASTIC FT-107 DMS

This has to be Yaesu's finest transceiver A masterpiece of solid state engineering you only have to take the cover off to see the thought & care that has gone into its design Full band coverage, of course in all modes (FSK included) A massive 240W PEP input, with features like RF speech processor, variable bandwidth, superb noise blanker PLUS 12 channel memory The FT-107 is everything you want from a transceiver and a little bit more

D 2871

ONLY $1328

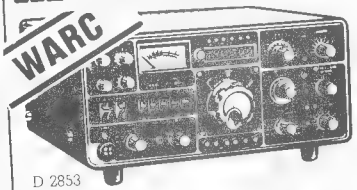
Antenna Coupler FC 107 D 2873



Problems with antenna mis-match on your FT-107? Not with this superb coupler. Designed to match the 107 styling, but just at home with any transceiver Huge meters for power output and SWR Superb quality!

ONLY $205

FT-902D our most popular HF transceiver



D 2853

The FT-902D has just about everything you've ever wanted in a transceiver All modes (yes even FM great with transverters), & all bands from 160 to 10M (including WARC) You get digital readout, RF speech processor, rejection tuning 180W PEP input etc etc So come in to one of our stores & check it out & ask for your free brochure

ONLY $1195

Antenna Coupler FC 902

This coupler can feed anything from a random length of wire to a beam Match the load perfectly so you can deliver more power up there where it's wanted! Suits all bands, has built-in SWR/pwr meter as well 50 or 75 ohm system, 500W rating

ONLY $265 D 2855

DICK SMITH Electronics

Australia's largest supplier and Yaesu factory approved distributer & service centre.

NEW!NEW!NEW!

VHF Handy FM Transceiver FT-208R

The FT-208R transceiver brings a new flexibility to today's active 2M operator An easy to read LCD display is coupled with a 4-bit microprocessor, bringing 10 memories & a scanning function Only with Yaesu can you get these features at such an economical price Check it out NOW!

Cat D-2889

ONLY $368 INC. CHARGER

MOBILE CHARGER

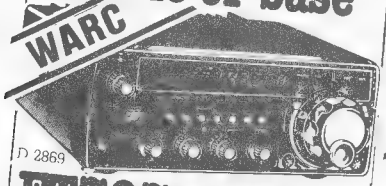
D 2894

The Yaesu PA-2 is a mobile charger, come pwr supply. Suited for the FT207R & FT208R Uses the power from your 12V battery when mobile. Also recharges nicads in your battery pack.

ONLY $29.95

Mobile or base

WARC



D 2869

FT707

Yaesu has used the 'state of the art' technology & put it into such a tiny package Yes, it's the brilliant FT-707 This little wonder contains all the outstanding features that most big rigs lack It's a full power, all HF band (inc WARC) multi mode transceiver You get digital readout, LED S/power meter, push button operation all the things the amateur needs for safe reliable operation. You've wanted a long time for a rig like this, so take the splurge now, it's well worth the money

ONLY $795

Antenna Coupler

Get the most from your FT-707 use the Yaesu FC 707 antenna coupler & ensure your transceiver always delivers the power it should Has all the features you need pwr/SWR meter, in built dummy load all band coverage (including WARC) less than 0 5dB insertion loss

D 2875

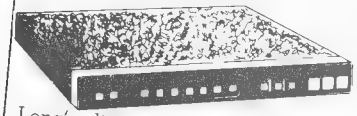
ONLY $149.50

Base operation?

Just add the FP-707 mains supply & you're away You get fully regulated 13 5V at 20A Has plug-in connections so you can't cause problems plus you get an extra speaker - for greater clarity D-2895

ONLY $175

Digital VFO



Long'n slim - intended to sit under the 707. 12 memories, up/down scanning in 10Hz steps & receiver offset tuning. Power by FT-707. D-2896

ONLY $299.50

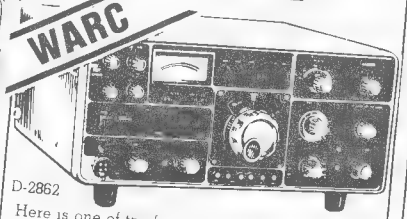
Mobile bracket

Don't let your valuable 707 jump all around the car. Fit it in this superb mounting bracket for safety & security. Also holds the digital VFO. A must for the serious mobile operator. D-2897

ONLY $36

Economy HF/SSB The FT 101Z

WARC



D-2862

Here is one of the finest transceivers in the 101 family the FT-101Z This brilliant performer is packed with a host of features, that the more expensive radios lack So why pay more when you can get features like RF speech processor, variable IF bandwidth, all current HF bands (inc WARC) 180W input (SSB/CW) & AM/CW/SSB operation & many other features to numerous to mention So do yourself a favour and check it out NOW at a store near you!

ONLY $795

FT 101ZD

STOCK LIMITED

Remember the famous FT-101B? And the 101E? Here is one of the most popular of the 101 series It has all the features of the famous 101Z but includes digital frequency readout Stocks are limited so ring the nearest store & check if they have stock left

D-2859

ONLY $910.00

NEW! FT 101Z FM

Now you can have the features of the renowned FT-101ZD with the benefit of FM Get crystal clear reception & trouble free interference It makes a great combination!

$885

D-2872

DC-DC Inverter

Want to go mobile? Add this superb DC/DC inverter to your car battery (13.5V nominal). Don't tie yourself to your shack - get out to where the DX is great!

D-2864

ONLY $77

FL-2100Z 1.2kW Linear Amp.

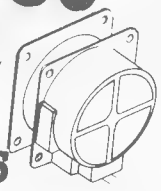
If you want a linear amp built like a 'power house', that gives you a clean, strong signal, try the new WARC FL 2100Z Australian amateurs can be assured that at our maximum legal limit of 400W PEP the FL 2100Z is 'just coasting' - resulting in years of extra life It features twin cooling fans for reliable operation & gives plate voltage VSWR & DC readings from its two large meters Suits virtually all amateur transceivers on the market

ONLY $580

D 2548

Yaesu Fan

Give your FT-101Z a break by installing a cooling fan Comes with all the fittings, 110V operated (runs from a tap on the transformer).

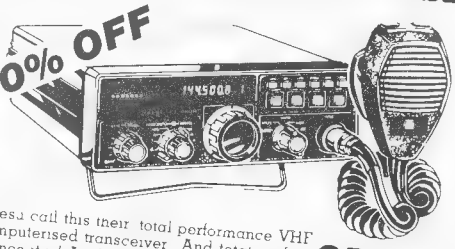


ONLY $29.95

D 2865

Yaesu's top 2 metre FT 480R has FM/CW & SSB

10% OFF

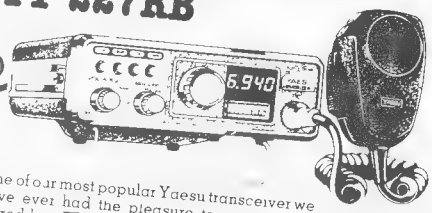


Yaesu call this their total performance VHF computerised transceiver And total performance it is! As the top-of the line Yaesu 2M family you'd expect a lot You get FM, SSB CW over the full 2M band, with two VFO's, four memory channels, scanning, digital read out, hi/lo power switch & much, much, more To sum it up in one word, superb!

ONLY $525

D-2887

PLL scanning 2 metre FT 227RB



One of our most popular Yaesu transceiver we have ever had the pleasure to operate the incredible FT-227R The PLLL scanner will take you anywhere within the 2M band instantly - just press the scan button on the microphone Has four memory channels, power output of 50W, & the receiver has better than 0.3uV sensitivity (10dB S/N) It operates on 13 5V DC with protection against reverse polarity & high antenna SWR For value-for-money, it's hard to go past the FT-227RB

ONLY $319

D 2891

SPECIAL OFFER

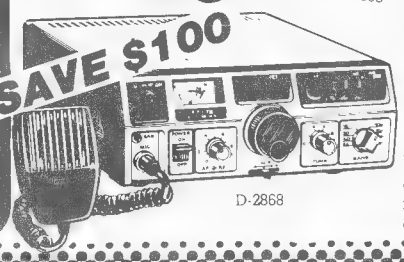
FREE If you purchase a D-4100 base with resonator, we will give a **FREE** 2M stub (D-4102) worth $11.25 at no extra charge.

When you buy the gutter mount base & 2M stub, you're on the air on 2M immediately As you want the HF bands, simply buy that band resonator/antenna whip & screw it into the 2M stub You only have to buy the whips for the band you want Go mobile with Yaesu

RSE - M 2 GUTTER MOUNT Cat. D-4100	$24.95	RSL - 7 40M ANTENNA Cat. D-4112	$25.50
RSE 2A 2M STUB Cat. D-4102	$11.25	RSL - 14 20M ANTENNA Cat. D-4114	$25.50
RSL - 145 6M/2M ANTENNA Cat. D-4104	$27.50	RSL - 21 15M ANTENNA Cat. D-4116	$25.50
RSL 3 5 80M ANTENNA Cat. D-4110	$25.50	RSL 28 10M ANTENNA Cat. D-4118	$25.50

DICK SMITH WILL BEAT ANY GENIUNE ADVERTISED PRICE ON YEASU EQUIPMENT.

SAVE $100



D-2868

NOVICE POWER HF/SSB

There aren't many transceivers available in Australia which are particularly suited to novices - but wont disgrace themselves either. The Yaesu FT-7B suits the novice as well as the full call amateur. Gives you all the current HF bands with power output up to 50W You also have the option of AM, CW or SSB with the choice of VFO or a crystal locked channel. The FT-7B is ready when you are, hook up your power & antenna & away you go!

NOW ONLY $549

NEW! NEW
2 METRE PORTABLE
FT 290R

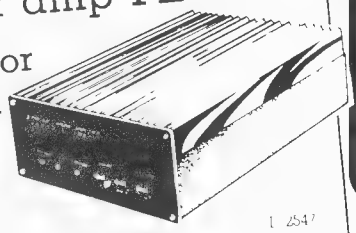
ALL MODE FM/SSB/CW

The FT-290R is a highly sophisticated compact multi-mode transceiver for the 2M amateur band. Featuring PLL sythesis in 100Hz, 1KHz, 5KHz, or 10KHz steps. The FT-290R utilizes a Liquid Crystal Display for digital readout for the operating frequency, 10 memories, scanning of the band or memory channels, two VFOs & receiver offset tuning makes the FT-290R a significant breakthrough in technology.

ONLY $395.00

NEW! NEW
VHF Power boosted linear amp FL-2050

Ideal for all 2M rigs



Add this to your hand held for real mobile power. Also suitable for SSB, CW, AM etc. Operates from 13.6V DC up to 15W input for maximum power. Includes 12dB receiver pre-amp, with automatic transmit receive control.

ONLY $239.00

The 1981 Radio Amateur's Handbook ARRL 640 pgs

This book is packed with subjects like: 600 MHz frequency counter, Link - Coupled Transmatch, Modulated RX Noise Bridge, IC op amp and sweep tube charts, Antenna/Preamp system for EME, Modern Band - Edge Marker, Pin Diode QSK System, - plus heaps more, too numerous to mention. Has 22 chapters of the usual high standard plus revised template drawings for a variety of circuit boards and some revised chapters eg. Power Supplies. A must for the shack!

B 2218 **10% OFF** **ONLY $14.35**

VALUE PACKED!

AMATEUR CALLBOOKS
FOREIGN RADIO

The Foreign Callbook contains over 300,000 licenced radio amateurs in countries all over the world, giving call letters, name and address. Ideal for DXers.

B 2262 **ONLY $21.95**

UNITED STATES N, K & W LISTINGS

Contains the call letters, class name and address of over 300,000 licenced radio amateurs in the United States, its possessions and territories. Great for the active amateur!

B 2260 **ONLY $22.95**

Antenna Anthology

The best of recent QST HF antenna articles and theory presentations collated into one useful & very handy reference book. Ideal for those antenna experimenters!

B-2205 **$6.25**

All about cubical quad antennas

The world famous classic on Quads. Gives new dimensions, revised gain data, Quad V Yagi, etc etc. Correct dimensions given for 6 to 80M.

B 2304 **$5.50**

Q & A for the novice licence

Keith Howard VK2AKX

For the would be amateur this book puts a question then gives the answer in simple but explicit terms, an excellent means of learning. Covers everything from A Z.

ONLY $4.95

B 2315

WORLD ATLAS

This 20 pg colour world atlas gives diagrams of all the continents, plus the Polar projection & the West Indies, Caribbean area. A must for the serious DXer.

ONLY $4.20
B-2268

Radio Amateur prefix map of the world

Shows the prefix on each country plus capitals & major cities. Also DX zones.

ONLY $2.20
B-2264

DICK SMITH GREAT CIRCLE MAP

Azimuthal equidistant projection of the world, with Australian Amateur frequencies, international radio prefixs & international Q signals. Centered on Australia.

ONLY $3.00
B-4502

DICK SMITH ELECTRONICS

MAIL ORDER CENTRE: P.O. Box 321 North Ryde, NSW 2113. Ph. (02) 888 3200

NSW: 145 Parramatta Rd **Auburn** 648 0558, 613 Princes Hwy **Blakehurst** 546 7744, 818 George St **Broadway** 211 3777, 531 Pittwater Rd **Brookvale** 93 0441, 147 Hume Hwy **Chullora** 642 8922, 162 Pacific Hwy **Gore Hill** 439 5311, 30 Grose St **Parramatta** 683 1133, 125 York St **Sydney** 290 3377, 172 Maitland Rd **Tighes Hill** 61 1896, 263 Keira St **Wollongong** 28 3800

ACT: 96 Gladstone St **Fyshwick** 80 4944 **QLD:** 166 Logan Rd **Buranda** 391 6233, 842 Gympie Rd **Chermside** 59 6255 **SA:** 60 Wright St **Adelaide** 212 1962 **VIC:** 399 Lonsdale St **Melbourne** 67 9834, 656 Bridge Rd **Richmond** 428 1614, Cnr Dandenong & Springvale Rds **Springvale** 547 0522, 260 Sydney Rd **Coburg** 383 4455 **WA:** Cnr Wharf St & Albany Hwy **Cannington** 451 8666, 414 William St **Perth** 328 69 44

Order Value	Charges
$5-$9 99	$1 20
$10-$24 99	$2 20
$25-$49 99	$3 30
$50-$99 99	$4 40
$100 or more	$6 00

These charges for goods sent by Post in Australia only. Not airmail overseas or road freight.

VK4 WIA NOTES

DIVISIONAL SERVICES

Are you making best use of the services offered by the Queensland Division? Did you know, for instance, that our Awards Manager, Don VK4UA, can check your cards for various awards? The Outwards QSL Bureau not only allows you to send your cards around the world for 2 cents each, it can provide you with QSL information for those rare DX stations. The Inwards QSL Bureau co-ordinates all incoming cards, sorts them and makes them available to all amateurs. Do you purchase books from the Book-shop? It carries a wide range of technical literature at very reasonable prices — look at the list in this month's QTC.

RADIO TOWERS IN VK4

The May issue of QTC carried an informative article on local government vs. towers. In view of the problems now being experienced in other States, this is a "must" for anyone's reading list. Send for a copy if you don't have one.

RADIO CLUB WORKSHOP

Your radio club has been requested to send in ideas and motions for next year's workshop. What did you contribute? It is proposed that this time a "live-in" weekend will be arranged and it promises to be a very productive meeting. Get your motions in now — this year we will accept general motions from members who are not club members.

JOHN MOYLE NATIONAL FIELD DAY

This popular field day weekend is on again this February, and now is the time to commence your planning. The Radio Amateurs' Group VK4WIZ has proven itself to be the best field day club in Queensland, if not Australia, and is looking for some competition this year. Who is going to take up the challenge? Your club? Look for the slightly altered rules in January AR.

COUNCIL ELECTIONS

It is that time of the year again. You are probably aware that the affairs of your Division are managed by twelve amateurs elected annually as the VK4 Council. Have you ever considered nominating? This is a positive way in which you can contribute to the organization of your hobby. Think it over then arrange for two members to nominate you as soon as possible.

HOW TO GET UP-TO-DATE INFORMATION

Listen to the news each Sunday, most bands 0900K on phone and 1000K on RTTY (VK4RBT). Council may be contacted via the news re-broadcast call-back on Mondays, 3605 kHz at 1930K, the Queensland net each Thursday, 3605 kHz at 1930K, and on the Radio Club net each Tuesday, 3605 kHz at 1930K, or via GPO Box 638, Brisbane 4001. Keep us in touch with you.

VK4DT. ■

Ham Radio Horoscope

HAM RADIO HOROSCOPE
AQUARIUS: JAN. 20-FEB. 18

You have an inventive mind and are inclined to be progressive. You lie a great deal, like giving a report 40 over 9 when the other stations is barely S3. You forget cards for DXCC. People think you are stupid, but that's because you come across that way.

PISCES: FEB. 19-MAR. 20

You are imaginative and can find DX stations at the bottom of any pile-up. Your talent is particularly adept when following OSCAR stations around as they shift frequency. You do get confused now and then and work your own station.

ARIES: MAR. 21-APR. 19

You are quick tempered, and tend to respond with bitter sarcasm when people's operating practices offend you. But when you do the same thing, you can't take the criticism.

TAURUS: APR. 20-MAY 20

You are practical and persistent, dogmatic. Most people think you are stubborn. You keep on calling DX stations long after they have gone QRT. But this sometimes works and they hear you when they come on again the next day.

GEMINI: MAY 21-JUNE 20

You are a quick and intelligent thinker, and people often admire you for your sense of timing in a contest. You are bisexual, which means you tail-end a lot.

CANCER: JUNE 21-JULY22

You procrastinate a lot, which is one reason why your shack is so messy and your VFO drifts. But you are sympathetic and understanding, and people always ask you to help them with the messy jobs, like changing gears in their rotators. You do help them, too, when you get around to it.

LEO: JULY 23-AUG. 2

You think you're a born leader. Others think you are pushy. You are arrogant and a bully. That's why you win contests.

VIRGO: AUG. 23-SEPT. 22

You are logical and neat, and you pick nits. You have quite a collection of nits, in fact, that you have picked. But some of them dried up. You tend to be unemotional and you fall asleep at the key a lot, and wake up sending your dreams. You really ought to see a psychiatrist.

LIBRA: SEPT. 23-OCT. 22

You are artisic and have problems facing reality. You won't admit that the station you called came back to someone else, so you go back and give him a report, and chatter on while he works three or four other guys.

SCORPIO: OCT. 23-NOV. 21

You are shrewd and unethical. You're the type of guy that starts rumours to throw the rest off the track, like getting everyone to listen on 14220 when the DX is really on 14250. Having two transmitters at the same time is a disgusting ruse.

SAGITTARIUS: NOV. 22-DEC. 21

You are optimistic and enthusiastic, but not about ham radio. If you're an XYL, you are tolerant of ham radio. If you're a novice OM, you refuse to go for your AOCP exam because you hate to fail.

CAPRICORN: DEC. 22-JAN. 19

You don't like to take risks, and you tend to be lazy. If you can, you get others to work DX for you so you can watch TV. You always have guest operators in contests. You should avoid standing still too long or you may take root and have to remain there forever.

ARNS Bulletin, April 1981. ■

QSP

SOME THOUGHTS ON THE ROYAL SIGNALS NET — 21.170

Late in the night when the XYLs have gone to bed, a few avid RSARS members in VK land sneak into the radio shack and tune up on 21.170 MHz at 12.30 GMT. The first sign that the RSARS net has started is Les' VK2NLE melodious voice, or George's VK4KY deep voice. Then out of the QRM and QRN comes G6UC and G4HLC. (Can they hear me?)

We patiently wait to be called in by Net Control, as he talks to the phantom Gs with 5 x 9 signals into Sydney. As the clock creeps past midnight local time, there is a faint call from ZL band, followed by a booming 5 x 9 VE and the Gs, GWs and GMs start joining the group.

It is now early morning as we creep to bed, hoping not to disturb the family. The net has been a good one — several new stations, some on voice and some on CW.

I am sure there are a lot of VK-ZL members who could join the net occasionally. It is an opportunity to work three continents, meet new and old friends on the air, and help other members gain the coveted VK-ZL RSARS Award. If you have a spare evening, please call into the net and join the group.

Roger Cordukes. 73 de VK4CD. ■

If you received this issue of Amateur Radio without being a WIA member or subscriber, it was not an accident. Please consider it an inviation to join the WIA. Details are on the enclosures.

WIA members receiving recruiting material in this issue, please put the material to good use by passing it along to a non-member with a recommendation to join.

VHF-UHF

AN EXPANDING WORLD

Eric Jamieson, VK5LP
Forreston, S.A. 5233

VHF/UHF BEACONS

Freq.	Call Sign	Location
For 28 MHz beacons refer October 1981.		
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.023	HH2PR	Haiti
50.025	6Y5RC	Jamaica
50.035	ZB2VHF	Gibraltar
50.036	HC1JX	Quito
50.038	FY7THF	French Guiana
50.040	WA6MHZ	San Diego
50.048	VE6ARC	Alberta
50.050	ZS3E	South Africa
50.060	PY2AA	Sao Paulo
50.070	VP9WB	Bermuda
50.070	YVZZ	Caracas
50.080	TI2NA	Costa Rica
50.088	VE1SIX	New Brunswick
50.100	KH6EQI	Pearl Harbour
50.106	ZS6LN	South Africa
50.120	4S7EA	Sri Lanka
50.498	5B4CY	Cyprus
51.022	ZL1UHF	Auckland
52.013	P29SIX	New Guinea
52.150	VK5KK	Arthurton
52.200	VK8VF	Darwin
52.250	ZL2VHM	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.330	VK3RGG	Geelong
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.400	VK7RNT	Launceston
52.420	VK2WI	Sydney
52.425	VK2RAB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
144.400	VK4RTT	Mt. Mowbullan
144.420	VK2WI	Sydney
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.550	VK5RSE	Mt. Gambier
144.600	VK6RTT	Carnarvon
144.700	VK3RTG	Vermont
144.900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.440	VK4RBB	Brisbane
432.450	VK3RMB	Mt. Bunningyong

Only change of note this month to the beacon list is the frequency change of JA2IGY from 52.500 to 50.008, where it has already been heard. Advice from Graham VK6RO and confirmed by JR6IGG.

Tom VK5TL has written to say he copied the ZS5VHF beacon on 9/9 at 0640Z transmitting the following information: "ZS5VHF please QSL to ZS5TR or phone (03)175 3125 vvv de ZS5VHF. Beacon position 29D 44M South, 30D 50M East, Natal, South Africa. vvv 28025550.005 and 144.925 MHz." Tom said the beacon was actually on 28.255 MHz. Last month I listed it as being on 28.2025 but that is obviously wrong. Someone has programmed the keyer incorrectly by putting an extra 0 in as the third digit. Thanks, Tom.

NEWS FROM CANBERRA

After a long time it was good to receive a letter from Andrew VK1DA, who pointed out the reason the Canberra beacon on 144.475 uses a vertical antenna is that it is a former antenna used by repeater 6900, which has now been shifted to another site. The only chance to put another antenna, horizontally polarized, on the site is when the Department of Transport radar unit is off the air, so we may have to wait for that to occur! When something can be done there are hopes to include a six metre antenna on the mast as well for the proposed beacon on 52.475 MHz, which has been approved and allotted the call sign VK1RTC.

Apparently the multitude of HF, VHF and UHF transmitters on the various hilltops around Canberra make headaches for everyone, including DOT, whose equipment suffers wideband interference when certain refractive conditions exist to mix the medium frequency stations with the HF and VHF, etc. That's the worst of having so many good elevated sites to use!

Eddie VK1VP is currently working on a UHF FM repeater using one of the Philips donated W1FU units, under test it is providing about 3 watts to the antenna, which is a 13 element coaxial collinear. The system is destined for Mt. Ginini and there are hopes of increasing the power to 25 watts.

On the two metre scene in Canberra Andrew says 144 MHz activity has increased a bit over the years with the ready availability of small multi-mode rigs, but it seems few are really truly interested in DX. And it seems there generally exists more interest in 144 MHz in the country areas of New South Wales than in Sydney.

During the RD Contest Dick VK1ZAH operated portable from a ridgetop location on 52, 144, 432 and 1296 MHz. Dick scored over 400 contacts on those bands but only one Sydney station was worked! The FM channels in Canberra ran hot with 50, 51, 40 and 49 being used roughly in that order. On 1296 Dick was only able to work Neil VK1ZT and Bob VK1RC.

Bob VK1RC spent part of that weekend in Sydney and was staggered at the lack of activity on 2m FM. One station was heard to say he had been pretty active, then gave out number 013! It certainly gives the impression the Sydney boys are really browned off, which seems a pity.

Thanks for writing, Andrew, at least the rest of us know a little more about what goes on in your city, and some of the problems you encounter.

NEWS FROM COCOS (KEELING) ISLANDS

Mike VK9ZYX writes from Cocos Island in the Indian Ocean to advise he is now fully operational on 6 metres using an FT625R into an adaption of G2BCX's 16 dB 2 metre beam, i.e. triagonal reflector, 2 x phased dirven elements and 5 directors. Seems to work quite well at 15 metres high.

Has tried often to call VK6 and VK8, but only ends up with JA QSOs, or hear them working the VK6s. The KH6EQUI beacon is often heard. After experiencing 2 metre FM repeater operations in Australia, JA "pile-ups" are something different! Easily worked 100 JAs in four evenings for 28 prefixes. But Mike is still very anxious to work VK stations.

Mike is undertaking a linear amplifier project with the aid of info from VK9YA-VK5CCT and also looking at constructing a pre-amplifier. Also has a 2 metre 16 dB beam to be mounted on the mast and a lend of Alex's VK5CCT IC202 to try 2 metre DX and Oscar.

QSL to Mike Beall VK9ZYX, Cocos (Keeling) Island, Indian Ocean, Western Australia 6799, or via the QSL Bureau.

WHAT'S HAPPENING IN THE WEST?

Graham VK6RO has just returned from a holiday in the north-west of VK6, and while there worked 433 JAs, one HL2 plus hearing H44PT, P29ZAS and VK8VF, all on 6 metres. Since 1979 Graham has worked more than 750 JAs whilst mobile, including three countries JA, KG6 and HL2, heard H44, P29 and ZS2. He says conditions at the home QTH for contacts to JA and other places is so poor he has to go north to work them! Equipment consist of FT680R, which gives 10 watts output on SSB, FM or CW and 3 watts on AM, also an IC502 3 watts SSB. Antenna is a homebrew quarter wave mobile whip.

This trip: SSB, 232 JAs up to 5 x 9 + 20 dB; AM, 89 worked up to 5 x 9 + 10 dB (didn't know there were so many AM stations still around . . . 5LP); FM, 65 worked, some with 1 watt, 5 x 9 + 10 dB; CW, 47 worked with 599 reports, plus others at 1 watt. On the IC502, with its inbuilt whip antenna, signals from Japan have been up to 5 x 9 + 20 dB!

It is interesting to note that as Graham progressed further north the more contacts into Japan were being made, e.g. 3/9 Carnavon 19 JA; 4/9 Karratha 21; 5/9 Port Hedland 6 plus VK8VF beacon; 6/9 Broome 98 JAs, plus Malay TV audio FM on 53.750 at 5 x 9 + 40 dB for several hours; 7/9 Broome 99 JA; 8/9 31, 9/9 29 plus reception of JA2IGY on 50.008, very strong FM broadcast station, possibly Chinese, on 50.642 MHz at 0315Z; 10/9 still at Broome 68 JAs, heard P29ZSA on 50MHz working JAs, heard H44PT on 52.050 at 1123Z calling CQ but VK8GB grabbed him! 11/9 Pt. Hedland 19; 12/9 Dampier 22 plus HL2; 13/9 Dampier 18 JA; 14/9 Carnarvon 1 JA plus others on 50 MHz; 15/9 Carnarvon 2 JAs.

During the day the MUF at Broome did not rise above 43-45 MHz until sundown, when the 49.750 TV was heard every day, and the MUF rose very rapidly. TV from Malaysia was heard most nights on 53.750, whilst FM carriers were on 50.540, 50.550 and 50.642 most nights, plus two-way radio signals on 51.950 with American accents.

Regency®

scanners ...action as it happens

A choice of 3 scanners — for use at home or on the go!

Vicom International Pty. Ltd.

57 City Road
South Melbourne
Victoria, 3205
Phone (03) 62 6931

339 Pacific Hwy
Crows Nest, NSW
2065
Phone (02) 436 2766

Authorised Dealers

N.S.W.
Newcastle
Elektron 2000
26 2644
Wagga: Rivercom
21 2125
W'Gong: Macalec
29 1455

Queensland
Brisbane: CW
Electronics
397 0808
Cairns: GCG
Communications
54 1035
Gold Coast
Amateurs
Paradise 32 2644
Townsville Robco
Equipment 72 2633

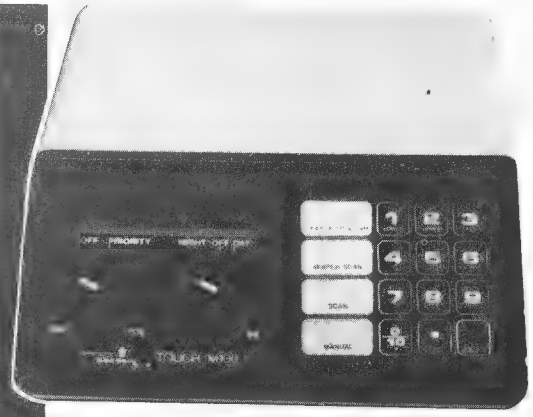
Victoria
Melbourne
Eastern Communications 288 3107
Moe: Codlin
Communications
27 4516
Hamilton: Hamilton
Electronics 72 3333
Ballarat: Wecam
39 2808

South Australia
Adelaide.
Compucom 43 7981
I C S. 47 3688
Mt Gambier Set
Services 25 2228

Western Australia
Perth Willis
Electronics 21 7609
Netronics 46 3232
Kalgoorlie: Hocks
TV 21 1906

Tasmania
Launceston
Gelston 44 3882
Advanced
Electronics 31 7075
Hobart. Harvey
Skegg 47 6674
Burnie: VK
Electronics 31 1708

VICOM



Model M100

The 10 channel, no-crystal scanner!

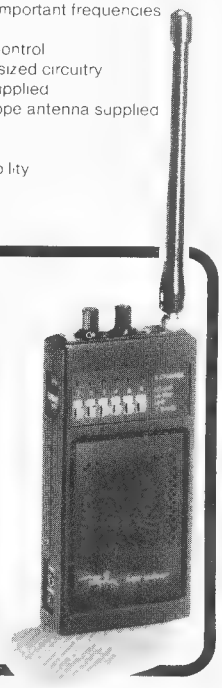
FEATURES:
- No crystals required
- 10 Channels
- 6 Bands
- A I frequency search
- Priority
- 10 programmable R A.M Channels
- Search Hold to stay with important frequencies
- Search and scan delay
- Manual, Search or Scan Control
- Custom frequency synthesized circuitry
- AC supply and DC cord supplied
- Detachable, swivel telescope antenna supplied
- Attractive, durable case
- Top-mounted speaker
- Regency quality and reliability

$399

Model H604

The hand-held scanner gives you the action wherever you go.

FEATURES:
- 6 Channels - so you'll hear all the action
- 4 Bands - LoVHF, HiVHF, UHF, UHF-T
- Advanced circuitry - combines small size with great performance
- L E.D. channel indicators - bright and long lasting
- Channel lock-outs - select only the channels you want to hear
- Step Control - advance channels one at a time
- Two Antennas - Flexible antenna and wire antenna included
- Adapter/Charger included



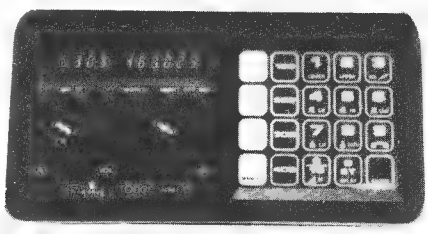
$169

price does not include crystals

Model M400

Hear all the action on 30 channels covering over 15,000 frequencies.

FEATURES
- No crystals required
- 30 Channels
- 6 Bands
- A frequency search
- Priority
- Data readout quartz clock
- 30 programmable Channels
- Search Hold to stay with important frequencies
- Quartz elapsed time clock records up to 100 hours
- Programmable Search increments
- Search and scan delay
- Manual Search or Scan Control
- Custom frequency-synthesized circuitry
- AC supply and DC cord supplied
- Detachable swivel telescope antenna supplied
- Nicke Cadmium memory battery included
- Attractive durable case
- Top-mounted speaker
- Regency quality and reliability



$449

A Chinese (?) FM broadcast heard on 52.600 each night. Graham said we may have heard JA pile-ups on SSB, but you haven't heard anything until you hear a similar pile-up on AM. What a mess! The capture effect on an FM pile-up was remarkable to listen to with 5 x 9 + 10 dB signals.

Graham concludes by saying he spent $591 on accommodation while on holidays so each JA contact cost him $1.36! I guess that's another way of looking at and justifying expenditure. On that basis my (5LP) trip to VK6 with a caravan three years ago was somewhat more costly when reckoned on the basis of the 10 contacts I had whilst there!

ADELAIDE UHF REPEATER

By the time you read this the proposed Adelaide UHF repeater should be at the testing stage as most of the unit is ready now. The licence has not yet been sought, but it is hoped to have it officially on the air early next year.

Possible operating frequencies being 438.525 out, 433.525 in.; 5 watts RF output to some form of gain antenna. It is fully solid state with the metal work being constructed by Tony VK5ASA and the electronics by Mark VK5AVQ.

BITS AND PIECES

17/9 Lyall VS6BE hearing Australian TV very strong on 51.750 MHz at 2230Z, nothing on 52. 19/9 WA4TNV/KL7 5 x 7 on 28.885 0210Z and trying into Eastern States on 52 MHz, also tried from VK5 but no go . . . FW8SC active into JA and should be on in December . . . W working into ZL from time to time on 50 MHz . . . 12/9 VK4 hearing ZL TV also heard by VK8GB, same day KL7 to ZL . . . 13/9 KH6EQI into VK2 . . . 7/9 report that G4JLH heard ZL1UHF beacon on 51.022 at 2015Z — only a marginal signal enhanced by meteor showers and received on an FRG7 with a microwave modules converter! . . . Garry VK5AS at Cowell now on 432 MHz . . . VK5ZRO worked VK5AS who was mobile on SSB from Elizabeth to Port Germein in the mid-north of SA on 2 metres — the 2 metre repeater normally only goes half that distance . . . 20/9 0315 to 0340Z 5 x 9 signals from JA7 and JA8 into VK5 . . . note there is to be a VK-JA 6 metre contest 20/11 to 29/11 and again 20/3/82 to 29/3/82, no other details.

GEELONG VHF FIELD WEEKEND

After a bit of prodding I was able to establish that the Geelong Amateur Radio Club proposes holding another VHF Field Weekend on 12/12/81 and 13/12/81 with rules and regulations similar to those last year and published in November 1980 AR. So that the time you might normally spend trying to find last year's copy can be better spent overhauling your portable gear, I herewith reprint the conditions for the weekend.

AIM

The Field Day Weekend is being conducted in an effort to encourage VHF/UHF usage and participation in the Ross Hull Memorial Contest, as well as filling the needs for a nationally co-ordinated VHF Field Day Weekend.

CONTEST PERIOD

Any continuous 24 hour period within the first 48 hours of the Ross Hull Contest.

RULES

All Ross Hull rules apply, plus/except the following:—

Only entries from portable stations will be accepted, however check logs from home stations will be welcome.

A station is deemed portable when it is operated at least 2 km from the home QTH.

No equipment, including antennae, may be set up more than 24 hours prior to the start of the contest.

Power may be derived from any source available.

A scoring contact may be made with the same station on the same band repeatedly providing at least 4 hours elapse between the contacts.

SCORING

Scoring as per Ross Hull Contest rules.

ENTRIES

Each entry must contain a front sheet giving details of station, including location and total score claimed, plus a photocopy of the log. All entries will be acknowledged and certificates will be awarded to the overall winner, plus the highest score in each call area.

All entries to be sent to the Contest Manager, Geelong Amateur Radio Club, PO Box 520, Geelong 3220, and should be postmarked not later than 13th January, 1982.

It is to be hoped propagation conditions will be better this year as they were very poor last year, even contacts on 2 metres over even average distances were difficult. It is also hoped more stations will make an effort to go out. It is comparatively easy to set up a portable station these days with equipment working off 12 volts if you can rake up a few spare antennae and other bits and pieces. The task increases when you start running higher power with amplifiers for several bands and the other associated equipment for such a set-up, but it can still be fun. Try it!

FROM OVERSEAS

Steve VK5AIM sends me some information from "The Short Wave Magazine" and its columns detailing VHF activity, and I note firstly the contact between Mike G3VYF and Abe 4X4IX in Israel at 1605Z on 11/6/81 via Es propagation over a distance of 3515 km. G3VYF is in Essex and was the only G station to make a contact suggesting a very selective path.

What is also believed to be a first time contact occurred when G3FPK worked a station in the Spanish, North African enclave of Ceuta around 1615Z on 10/7/81. Several other G stations were in on this one.

Also noted that first 6 to 4 metre contact between ZB2BL and GW3MHW occurred on 3/7/81 about 1640Z. And since 1/7/81 the EI stations no longer have 6 metre permits, and likewise neither do the Italians. In Denmark operators have to obtain a permit to listen on 4 metres!

Reading through the notes Steve sent, my heart went out to G3PBV, who complains of having a hill 200 feet high only 200 yards away. I know the feeling OM! Only my hill is 600 feet high!

CONCLUSION

As you may have guessed, overall things on the VHF bands have been rather quiet. There have been the usual JA openings and some Es on 6 metres, very little on 2 metres and 70 cm. However, hopefully October will see some improvements. Closing with the thought of the month: "A man's worst difficulties begin when he is able to do as he likes."

73. The Voice in the Hills. ■

QSP

PSSST!! AMATEUR RADIO PROFILES MAGAZINE

Amateur Radio Profiles (ARP) publishes a quarterly journal that allows no commercial advertisement. The journal provides an in-depth review of amateur equipment. The reports are totally unbiased and they tell it like it is; good or bad. ARP is published by Bill Winkis KC4PE, a member of the Users International Radio Club. ARP will provide a very valuable service to the amateur community, because it will allow you to read the pros and cons of the various manufacturers' radios so you can make a factual judgement of your purchase. Also, ARP provides a "GBBU Equipment Ratings". The Good, Better, Best and Ultimate dollar values, versus performance and how they compare. Here are some reports on equipment tested.

Ratings of 26 popular Tri-Band antennas, Icom 251A vs. Yaesu 225RD-IC2A, IC260, HF amplifiers, IC-720A, IC-730, KWM-380, etc. The magazine is well written and generally contains 20 pages. Subscriptions are US$13.00 per year, US$24.00 for two years. For your subscription write ARP, Box 164, Cataula, Ga. 31804, USA. Try it, you'll like it! (Surface mail prices quoted) ■

A Call to all holders of a

NOVICE LICENCE

Now you have joined the ranks of Amateur Radio, why not extend your activities?

THE WIRELESS INSTITUTE OF AUSTRALIA
(N.S.W. DIVISION)

conducts a Bridging Correspondence Course for the AOCP and LAOCP Examinations.

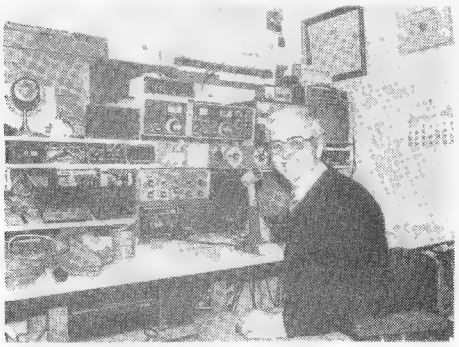
Throughout the Course, your papers are checked and commented upon to lead you to a SUCCESSFUL CONCLUSION.

For further details write to:

THE COURSE SUPERVISOR, W.I.A.

P.O. BOX 123,
ST. LEONARDS, N.S.W. 2065

HOW'S DX



Ken J. McLachlan VK3AH
PO Box 39, Mooroolbark 3138

No one can complain, the bands have been good throughout September with outstanding propagation and 10, 15 and 20 metres. Calling CQ, particularly on 10 or 15 metres, resulted in one having to resort to working by call areas to maintain any order and retain his sanity. Trying the country or prefix approach did not deter some Europeans, particularly USSR club operators, from getting out of line. One solution would have been to work split frequency operation, but I personally feel that this is a very selfish approach as more band space is used and the guys on the other end not having an external VFO are disadvantaged. This approach is the only way for a DXpedition to go otherwise no one would have a chance.

Many DX stations were heard and worked, including most of the expeditions on three bands at least.

One of the youngest operators in years but not in experience of handling the pileups was 17-year-old Mark A22ZM, who had 2,000 cards to use up in a couple of weeks before QSYing to ZS5-land at the end of September.

A lot of "big guns" could learn a lot by listening to the "little pistols" operating habits, and by using them could increase their DX tally.

LAZY DXers

A lot of operators unfortunately are becoming net only operators, letting someone else find the DX and bring it to them instead of seeking it themselves, or actually calling CQ. Some operators admit they work nets only. Perhaps this is the undoing of DXing in general and the escalation of sloppy operating techniques, which goes hand in hand with the lethargic attitude "you find it and I will work it".

As a net controller on a couple of bands, I feel that nets have their place on the bands, but don't depend on them to work all your new ones that way. You will have more fun and feel a sense of achievement by working the rare ones on your own. If you doubt your own capabilities, don't, and try practising different approaches in DX contests; you will, I am sure, be surprised at the results.

VACANCY

Whilst on the theme of nets, Percy VK3PA, the anchor-man of the ANZA and Pacific DX net, and a controller for over a decade, has intimated he wishes to retire from these duties in mid-1982.

If you are interested in DX and feel that you can contribute in any way as a controller please phone, write or catch up with Percy on either 21.204 MHz at 5.00 UTC daily, or 14.265 MHz Tuesday and Friday at 6.00 UTC. He would be delighted to hear from you

CHINA

As predicted by Vic T12VVR, there was activity from BY in September.

Four members of the Boing Employees' Amateur Radio Society arrived in BY on September 4th for an eight day visit, with two Drake TR7s under their arms, two trapped dipole antennas, the ARRL film on AR and a few books.

They unexpectedly were allowed to operate a demonstration station to communicate back to Seattle. This historic event took place on September 6th with a QSO between K7LAY/P and W7PMO. This was the first authorized amateur transmission in more than 32 years, and signals were good.

The second demonstration took place between the BEARA group in Shanghai and the Chinese in Beijing — both TR7s being pressed into service. The equipment worked faultlessly (as usual) and the operator in Beijing was Chen Fe Ho, the other operator was Hsu Y.C., ex XU8CH and C1CH many years ago. (Would anyone have a card from this gentleman?)

The Chinese asked the delegation to tell the world that their top government leaders are solidly behind amateur radio and before too long China expects to establish many friends through the media of AR. (For a fuller account, see International News.)

We all sincerely hope to hear the BY prefix on the bands in the forseeable future.

DX JOTTINGS

Jacques 3XIZ was active and provided many that missed VK4NIC/3X with the new one, if you were lucky, also QSL to W4FRU.

Congratulations to Philip VK2DPN, who has been notified that his WAZ mutil-band certificate is on its way to him and, being endorsed mobile, is the first one ever issued by the Editors of CQ Magazine.

A first for Philip and a first for VK. An article on how you did it would be interesting; how about it, Philip?

Peter FR0CE is very active on all bands both CW and SSB. He operates an 820S linear and quad at 20 metres on 10, 15 and 20, with dipoles at 18 metres for 40 and 80 metres. Unfortunately he has very few VK cotnacts but is always looking for the Pacific area — if you are successful QSL to DF2OU.

Dave C6ADV operating out of the Bahamas with a nice signal on 15 and 20 metres — using a log periodic beam at 14 metres and the exciter is a Drake TR4. Dave works varying and odd hours, and can be found around the usual DX frequencies on SSB 14.195, 21.295 and 28.695 MHz. QSL route is via N7YL.

Remember Ed W4MGM operating 9U5JM, who really looked after the VKs during his recent whirlwind trip through Africa? He is now back home, the direct QSL cards have been honoured and we came by this photo which was snapped whilst he was enjoying an Eyeball QSO with Mike 9X5MH over a beer proving that DXing is not all hard work!

Ed W4MGN and Mike 9X5MH.

BURMA

XZ9A Laydoh and XZ5A Sanplo still active all bands though have had their share of equipment failures. QSL cards even though adequate IRCs and green stamps have been included for airmail return are being bulk posted to points in most countries for distribution at internal mail rates. This is evidently to get a little more out of the xercise, and some are just going via the Bureau. It is felt that if you send an addressed envelope with IRCs or monetary coverage for the payment by return by airmail, that's the way it should come back, not via other indirect routes to increase the profit percentage but don't blame Sanplo or Laydoh.

SAN FELIX

Apparently the San Felix DXpedition at the time of writing are having their difficulties with the locals wanting to get into the act. The SVs being unable to obtain reciprocal licences direct or via obtaining a Stateside ticket for the FCC, then an automatic CE licence. On the last reports, early October for a limited period was the word; and the PY0 St. Peter and St. Paul Rocks jaunt being put off until 1982, due to internal difficulties and funds being inadequate.

CROZET

XYLs becoming QSL managers seems to be catching as George FB8WG on CROZET has enlisted the assistance of his XYL whilst he is on the island for a twelve month tour of duty. As the island has been virtaully unoccupied for a number of years, there is a lot of work to be done, and it is anticipated signals should be heard on all bands in early November from the much wanted locale.

George will be using his TS820S and a Triband beam. Up to the time of leaving Paris, he had not acquired an external VFO to make split operation possible, so

the going may be rough though he is a very experienced operator on both CW and SSB.

Logs will be sent by RTTY at regular intervals and the turn around time will be kept to a minimum for QSLs.

If you are successful a card to F2CL should gain you a result. Good luck!

Frank VK9NYG, with his newly acquired external VFO, is getting amongst the DX. 3,200 QSOs was the count to the middle of September and his manager Neil VK6NE is kept on his toes with the requests.

ILLEGAL OPERATIONS

EL2BA, President of the Liberian Radio Amateur Association, is seeking help to catch illegal operators who use EL calls operating maritime mobile. Only two call signs are licensed to sign MM (EL0AL/MM QSL EL9A and EL0AN QSL RYAA Bureau), the others being illegal. If you have a QSO with a MM station using any other suffix, please try to acquire the name of the vessel and location, make out a normal QSL card with this info on it and forward it through the Bureau. This hopefully will give the Association and the EL authorities evidence which they may use.

I0LLZ

Always a big signal, always a gentleman, is a conservative way of introducing Luigi I0LLZ to this column. Luigi is well known to VK DXers on 20 metres by either minding a net frequency, chasing up an elusive one for the "gang" to work, or just chatting amongst his many friends.

Luigi in 1939, using the call KA1LZ from his then QTH of Manila, came second in a world contest — no mean feat considering that a typhoon disrupted power for a considerable time that day.

Now he only needs three countries to have worked the world — those being Burma, China and Kamaran Island. If they are to be worked, Luigi will be there with his Collins line, Henry 4K linear, which is fed into a 5 element Telrex monobander at 100 feet. The QTH is a spacious home close to the centre of Rome where Luigi, with his XYL, Bianca, is enjoying his retirement and of course amateur radio.

Luigi I0LLZ.

Faces Behind the Key and Microphone

H.R.H. Prince Talal Bin Abdel Aziz Al Saud Ahmed HZ1TA.

KNIGHTS OF MALTA

Mario I0MGM has eventually succeeded in getting IA0KM "The Knights of Malta", confirmed as a new country by the ARRL effective from the initial QSOs, but please do *not* submit cards prior to 1/1/1982.

CW ON THE LOW BANDS —

As heard in the West with Mike VK6HD.

Mike reports that in his opinion the bands have not been very productive in September, but it looks as though he got some "goodies" in his log.

160 Metres

KG7, K7CA, VK9XW, W8ANO and W8JI.

80 Metres

AH2L, FO8DF, FP8AA, FW0DBK, JT0WA and W1 to W0 call areas plus G, F, OK and ZS.

40 METRES

CR9JA, DL2GS/YVS, EA6FD, EA8AK, FO8HA, FR7BP/J, HB0ALM, HF0POL, HH2VP, JT0WA, KV4C, OE1ETA/KH8, OE2VEL/KH8 and 6Y5MJ.

LISTENING AROUND THE CW BANDS WITH ERIC L3-0042

160 Metres

W8J1 and many VK2, 3, 5 and 7.

80 Metres

VK and ZL only.

40 Metres

AH2L, CM7MF, GI3OQR, ML1CX, KV4C1, OE1ETA/KH8, YB0VK, YC1BMK/3, ZK2TA, Y39UO, ZF2BN and 4N2CBM.

20 Metres

EA9GD, E18EK, FB8YH, F0GQ/FC, FK0AD FM0EOM, FW0BK, H13OC, TF3JO, VP9HM/P, VQ9A, VS6CF, ZK2BGD, 5W1DO, 9M02EG.

A DXer's dream — 9U5JM, 9U5AC, 9L1CA, W4MGN, 9U5WR.

15 Metres

AH2L, DL1GK/HB0, EA½KC, F0AHY/FC, FP8AA, IS0JGC, PZ2AA, UJ8JA1, VS6CF, 5W1DK and 5W1DO.

10 Metres

CE3ZW, FW8BK, FW0BE, HM01, HP1XEK, KA7JGP/KH2, OH0BA, YB0BK, YB0BRT, ZC4YC, ZS6BL1 and 5WDG.

QSL ROUTES YOU MAY REQUIRE

A7XD — PO Box 4747, Doha, Qatar, Africa.
A9XDB — PO Box 26180, Barhein.
FR0FLO — PO Box 200, Tampon, via 97430, France.
HC1MD — PO Box 9100, Quito, Equador.
H13BEA — PO Box 945, Santiago, Dominican Republic.
JA9IAX/JD — PO Box 2, Ogasowara, Tokyo, Japan.
SV0BV/SV9—PO Box 564, Athens, Greece.
ZK2BGD — PO Box 37, Alofi, Nive Island, South Pacific.
4W1AB — Box 2434, Sana, Yemen.

QSL MANAGERS YOU MAY NEED

A7XE — DF4NB
A9XDA — N4BPP
A9XDE — N4BPP
A22ZM — ZS5CU
A71FD — A7XD
C21NI — OE2DYL
C31IU — KJ8JAQ
C31LM — EA3BDW
C5ADR — DK9KD
C6ADV — N7YL
CT2DQ — W4PKN
DL7NS/HB0 — DL7NS
DL2VK/ST3 — DF9FM
EF6BDX — EA6CE
EL5G — K3RB
EL6A — K4SE
EL9A — K4WSB
F9UK1/3A — F9UW
FB8YI — F3KH
FB8YJ — F6APU
FG0/FO0/FS — N6RA
FG0/GDI/FS — F6AXX
FH8OM — DJ1TC
FK8CE — K2RDR
FK8DH — DJ9ZB
FO0KW — W6RFI
FR7BY — IS0IFA
FR7CE — DF2OU
FW0BF — DJ9ZB
G3MUV/CE0 — KA4MGH
G3POA/5N0 — G3RPD
GJ4JVO — GJ2LU
HC7CM — N5BET
HH2CS — F6AXY
HS0JUA — JA8ATG
J3AE — J3AAG
J5AG — SM3CXS
J88AQ — W2MIG
JW8XW — LA8XW
JY1 — WA3HUP
JY1 — WA3HUP
JY8 — ZL1BMU
KC6BS — JH7LMZ
K6LPL/CE0Z — W6ORD
KS6DV — WB6FBN
KN5N/VP2A — K9MK
K6SAD/KG6 — VE5QY
KX6ZY — K7TI
OE1ETA — OE2DYL
OE1VEL — OE2DYL
OX3KM — OZ4KM
OY5J — WA3HUP
DF3NZ/ST2 — DARC
FH8YL — I8JN
FH8YL — I8JN
SO3CC — Polish Buro
SV0AO — KA2FRP
TL8CR — F6AQO
TL8WH — W5RU
TU2DP — KC4JR
VP8HM — K0JW
XT2AU — WA1ZEZ
YT0RA — YU1EXY
YU7QCC/HB0 — YU7GMN
YZ3F — YU3TAQ
3A8EE — 3A2EE
3B8DB — K5BDX
4N0RA — YU1ELM
5T5AZ — KB7HB
7X4BL — K4CNW
7Z2AP — I8YCP
8J3XPO — JARL
8Q7BF — JA1ITE
9M02DW — 9M2DW
9Q5L — K3FN
9Y4LL — K2QIE

WHAT'S BEEN HEARD AND WORKED ON SSB IN VK

10 Metres
A22ZM, A51PN, CE0AA, CE0ZAD, DL8NU, A22ZM, A5IPN, CE0AA, CE0ZAD, DL8NU, EA6AE, EP2TY, F6AYE, G31J, HA8KEY, KX6BU, LA7OT, N6HR/KX6, AE3AE, PA0YJM, SV0BC, T3ODB, USSR most areas, W1—W0, XZ9A, ZE, ZS, 3B8AE/3B9, 1V3OSH/5R8, 8P6BX, 9Q5FL.

15 Metres
A22ZM, A71AD, CE0ZAD, C6ADV, DF9FM/A22ZM, A7IAD, CE0ZAD, C6ADV, DF9FM/ST3, D68AM, EA8XM, EA9JG, FO8DP, HS5AID, KC4AAC, M1C, OE8AJK/YK, SU1AA, T30AE, W1—W0, XZ5A, XZ9A, ZB2EO, ZD7HH, ZE1BP, ZS5MG, 3DCS, 4X4DX, 7Q7LW, 8P6BN, 9N1MM, 9L1FC, 9Q5L.

20 Metres
A22ZM, A71AD, C21N1, CE0ZAD, DF, DL, E, F, G, HA, HH, J6LOU, J73PP, LA, MYC, OX3ZM, PA0, S8AAP, T30AB, UK1PGO, VP8AEM, VP8AJL, VP8QG, W1—W0, XZ9A, ZS5Y, 4U1ITU, 4U1UN, 4W1AB, 8P6AH, 9Y4LL.

Sincere thanks to VKs 2DXH, 3CIF, L3-0042, VKs 4DK, 6IH, 6HD and 6NE for their contributions and assistance.

Good DX.

73. Ken. ■

National EMC Advisory Service

Tony Tregale VK3QQ
Federal EMC Co-ordinator

"POT-POUR-RI"
In these days of rising petrol prices it would be nice to be able to fill the tank each time we key our mobile VHF transmitter. This is what happened with a series of new cars recently — perhaps we should say "The guage indicated so". The cause — RFI to the (integrated circuit) tank sender unit — the cure was not just screening and filtering! After many hours of searching and bonding, it was discovered that the vertical antenna had been mounted in a double roof area. Bonding the double roof sections together at the base of the vertical cleared 90 per cent of the problem; the final 10 per cent was cleared with ferrote beads and filter capacitors.

Final installation and testing of the communications and electronic equipment was being completed aboard a new navy ship in southern Scotland. Saturday afternoon found most of the yard staff watching the cup final on the wardroom TV, and many reserach boffins testing the high power HF transmitters — "Well the two did not mix!". The antenna splitter/amplifier which had been supplied and installed by a very large communications company was found to be "as wide as a barn door". After a quick search of the dockyard dustbins for an old soup can, a temporary HPF was fitted to the input of the splitter/amplifier, avoiding a major walk-out of the yard personnel.

Location: Nato night fighter base, West Germany. Control tower reports intermittent lighting of intercom cal light from the transmitter station. The transmitter station was located one mile from the tower, all telephone and control cables were underground and consisted of 14 miles of ring cable, with many outlets and test boxes. An intermittent fault could be on any part of the ring. While awaiting the controller's clearance to inspect the problem, it was noticed that there was something strange about the intermittent nature of the light — "It was sending the station call sign in Morse!". The fault — the HF beacon transmitter had just been re-located and enough RF was being fed down the new telephone cable to light the lamp one mile away. Of course being able to read the code was a great help in locating this problem.

RFI ALMOST SCUTTLES COVERAGE OF SHUTTLE LANDING
According to the Associated Press, the FCC ordered four field engineers to Edwards Air Force base after it was learned that the equipment used by TV news crews was interfering with communications on frequencies which were to be used by the Columbia space shuttle on landing. The problem was traced to the ENG cameras set up at Edwards. These units use a small transmitter operating in the TV auxiliary bands (1990-2110) MHz and around 2450 MHz) to relay pictures to a nearby control centre. Unfortunately, spurious emissions from the cameras produced interference on the frequencies to be used by Columbia in landing (2200-2290 MHz).

According to James McKinney, Chief, FOB, FCC, everyone co-operated with the Commission, and the problem was quickly traced to at least six of the fourteen ENG cameras on hand. Replacements for the defective units were flown to the landing site and were operational two hours before Columbia landed. Had the problem not been resolved, however, there is little question that network coverage of the landing would have been curtailed.

TVI FROM SWR INDICATORS AND POWER METERS
From the USA comes a report of RFI problems associated with this type of test equipment. It concerns the Daiwa CN-720 and similar SWR indicators/power meters causing TVI when used on the HF bands, especially 10 metres. A spectrum analyser check confirmed the problem with both the CN-720 and the CN-520. The fault was traced to the LED's and associated circuitry. In addition to this problem, we have also found switching diodes and diodes remaining in the signal path in power amplifiers, when the amplifiers are "off", to sometimes be a source of TVI.

A most useful tool in understanding and dealing with all types of RFI problems is the "New Interference Handbook" from the USA. This book is very moderately priced and is excellent value for money — a most useful reference book for any shack. Available from Divisions and MagPubs. ■

SUPPORT OUR ADVERTISERS!

WIA
MAGPUBS SERVICE TO MEMBERS
★
Purchase your reference books, WIA badges, log books and similar items —

- **from your Division, or**
- **direct from MAGPUBS Box 150, Toorak, Vic. 3142**

Here are a few examples of prices direct from Magpubs (add postage on weight) —

ARRL Course in Radio Fundamentals	$4.70	(260g)
DOC Regulations Handbook	$3.60	(230g)
RSGB TVI Manual	$3.40	(140g)
RRL Weekend Projects	$3.70	(150g)
ARRL Antenna Book	$5.70	(510g)
All about Cubical Quads, Orr	$4.60	(150g)
CQTV ATV Handbook	$3.40	(200g)
WIA Log Book	$3.50	(310g)
Rad. Am. Prefix Map of World	$1.50	(80g)
WIA Membership Badges (2 varieties)	$2.00	(30c)
ARRL VHF Manual	$4.70	(520g)

INTRUDER WATCH
The new Federal Intruder Watch Co-ordinator is
BOB McKERNAN VK4LG
P.O. Box 50
Sandgate, Queensland 4017

ANZA Net Co-ordinates Vessel in Distress

Ken MacLachlan VK3AH

Whilst controlling the 21.204 MHz ANZA net in late September, Frank HT1KD called for assistance with a distress call he had received on 14 MHz regarding a vessel afire in the Pacific.

Alerting the Commonwealth Government Marine Search and Rescue Authority, reverse charges was accomplished within one minute, and before Frank had finished his original transmission. Precise information as to the vessel's co-ordinates, name, number of people on board, the hazard and its magnitude were in possession of the Coast Guard at Honolulu within minutes, who acted promptly by dispatching a search plane to the area immediately

With the land-line still open to Canberra we QSYed to the 14 MHz frequency, where the signal from the vessel was strength 9. The YL operator had stated that she was using a FT200 connected to a battery. Shortly afterwards in a very tense and frightened voice, she announced that 75 per cent of the vessel was afire and they couldn't get to the lifeboast but were abandoning ship in a heavy storm with high seas.

The 65 ft. vessel "Sun River", with a compliment of 18, last known position 164° 24' 16" W and 18° 11' 21" N may unfortunately never be heard of again, but as amateurs we know that a service has been provided and everything in our power was done to assist these poor unfortunate people, even through delibrate QRM on a frequency publicised as handling emergency traffic.

All operators should read page 4 AR September 1981, and get all details (including the registry of the vessel; this we did not get as it would have saved problems that occurred later), and if not directly involved refrain from comments on frequency and leave it to the original station who took the call. That station probably has better propagation and a fuller understanding of the problem as he has with the emergency since its inception. Help by all means, *if you are asked*. We suggest to some operators that they refresh their memory by reading the regulations.

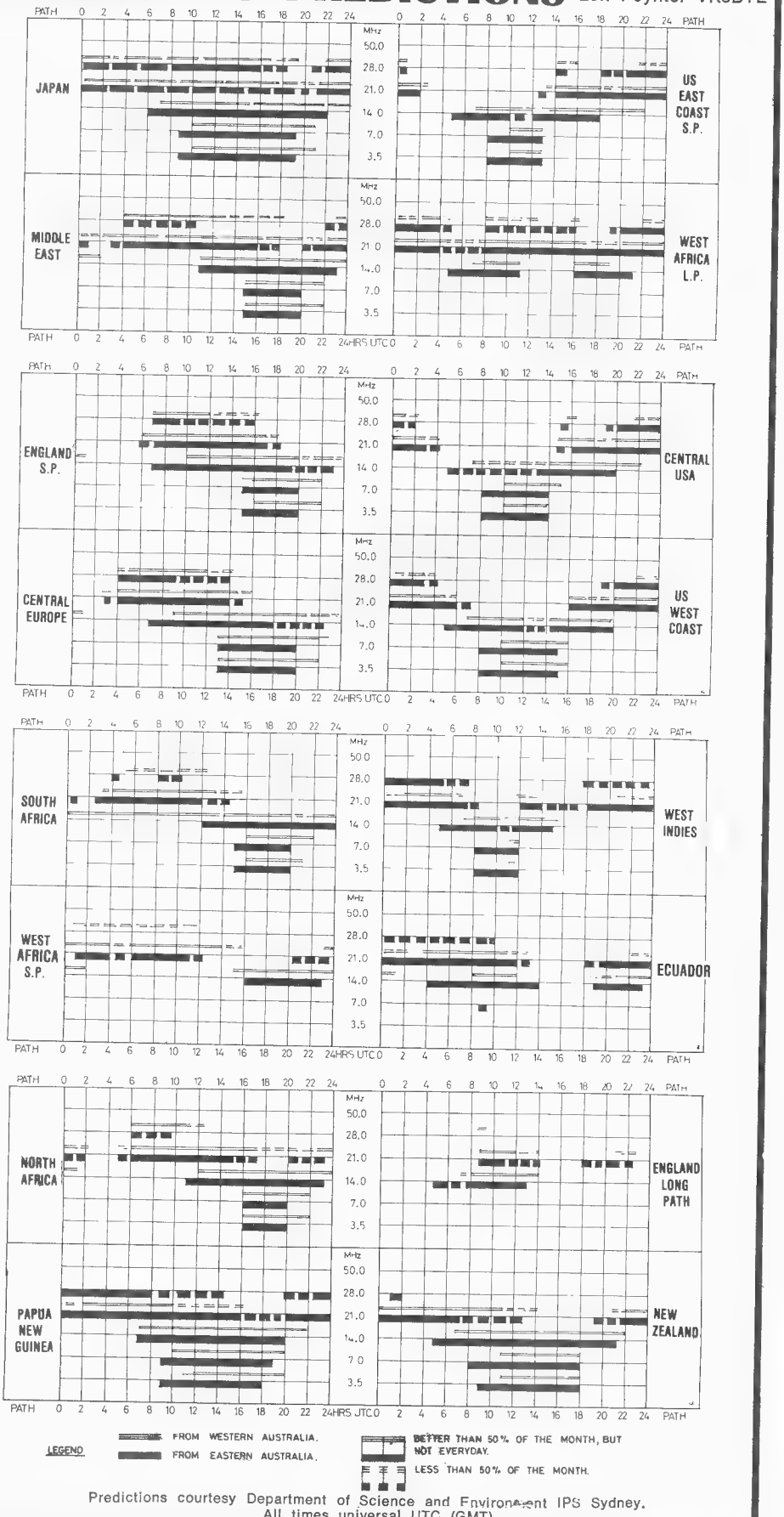
My sincere thanks to the gentlemen at the Centre in Canberra for their courtesy, help, advice and understanding, the Coast Guard Radio Room at Honolulu, radio amateurs HT1KD, ZL1BOQ, N6DKP, KH6ML and others who I might have missed.

Ken VK3AH. ■

Join a NEW MEMBER NOW!

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE



Predictions courtesy Department of Science and Environment IPS Sydney.
All times universal UTC (GMT).

EDUCATION NOTES

Brenda Edmonds VK3KT

Congratulations to all those who passed the various sections in the August exams. It was good to hear all the new call signs appearing in a rush in September. Commiserations and better luck next time to those who didn't quite make it, and of course good wishes to those about to attempt the November ordeal.

Perhaps this is an appropriate time for a few words about examinations, in reply to some of the disgruntled comments that have been heard.

Firstly and most importantly — the onus is on the candidate to record his answers on the answer sheet, and to fill in the details on the top of the sheet. In one recent examination four answer sheets were found to be totally blank except for the name, etc., at the top. Later it was found that four question booklets had selected answers marked, but there was no way these could be identified to any of the unmarked sheets. So four people who may have been quite confident scored zero.

The present system involves hand marking of all answer sheets — but the marker cannot be expected to know where you intended to put the circle if you did not put it round the right letter. If you circle alternatives A and C in question 37, and no alternative for question 38, that's two wrong even if C for 37 and A for 38 are correct. The answer sheets do require care in filling them in, especially if you don't work steadily through from 1 to 50. This is partly examination technique, I know. Some people need more practice with it than others.

There is no predetermined number of candidates allowed to pass. We are now receiving statistics from DOC after each exam (see recent ARs). The pass rate range between States agrees fairly well with the overall average of 35-40 per cent for AOCP for over twenty years. Novice rates are slightly higher than AOCP.

With regard to marks obtained, we all hear of the numbers of candidates who achieve 66 or 68 per cent, but remember that these are the more vocal ones, usually. The 50s and 58s do not make so much impression. DOC has produced statistics showing the number of candidates on each score for the November 1979 Novice and February 1980 AOCP exams. The numbers of candidates were approximately 1400 and 1100 respectively. At Novice level, 25.63 per cent of candidates scored 60-68 per cent, and 27.89 per cent scored 70-78 per cent, 5.11 per cent exactly on 70 per cent. For the AOCP the figures are 60-68 per cent, 26.27 per cent; 70-78 per cent, 18.09 per cent; 80 per cent exactly, 4.09 per cent.

The graphs show up as a standard distribution curve. All these statistics can be obtained from Divisional Federal Councillors or from me if details are required.

If you have any complaints about examinations, please do let me know.

If you would like to write some questions, I will be glad to receive them, either for use in trial papers or to pass on to DOC for use.

My first trial Novice paper is available now from the WIA Executive Office. I also have a supply of sample Morse tapes which I can copy for you if you send me a blank tape.

Once again, please send me any ideas or comments on education matters, or join me on 3685 kHz at 2200 EST on Wednesday evenings.

73. Brenda VK3KT. ■

The WIA is in busines for more members. Please help.

SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23 SPRINGWOOD N.S.W. 2777
1 WAHROONGA ROAD, SPRINGWOOD
TELEPHONE: (047) 54 1555

ANTENNAS

TET HB-35C 10, 15 20m 5 el log/yagi 13 ft. boom	$415
Cushcraft A3, 10, 15 20m yagi, 14 ft. boom	$325
Hy-Gain TH3-JR 10, 15 20m, 3 el yagi, 13 ft. boom	$250
Hy-Gain 411 yagi, 10m 5 el, 17 ft. boom	$115
Chirnside CE-5B 80, 10m vertical	$99
HF Helical Whip, 10, 15, 20, 40 or 80m	$30

CABLES

RG8/u quality coax cable, 50 ohm, per metre	$1.25
RG213/u quality coax cable, 50 ohm, per metre	$1.50
RG58A/u quality coax cable, 50 ohm, per metre	$0.60

ACCESSORIES

SWR/PWR/FS Meter —	
JD110 Meter, 1.5-144 MHz	$35
JD111 Meter, 1.5-144 MHz	$20
JD171 Meter, 1.5-144 MHz	$45
Coaxial Switch Box, 3-way	$15
TVI HD Lo-Pass Filter, 30 MHz	$30
HI-Q 1 : 1 50 ohm Balun	$15
BN-86 1 : 1 50 ohm Balun	$25
ASAHI Type Bumper Mount	$8
Standard Bumper Mount	$5
HR Spring Mount	$10

TRANSCEIVERS AND ACCESSORIES

YAESU MUSEN —	
FT-207R Transceiver	$325
FT-227RB Transceiver	$356
FT-480R 2m All-mode Transceiver	$525
FRG-7700 Receiver	$485
YM-35 Microphone with Scanner	$29
YM-37 Microphone, Standard	$15
MMB-2 Mobile Mount Bracket	$32
FT-101Z Series AM Unit	$35
KENWOOD	
TR-7730 Transceiver	$365
TS-530S Transceiver	$795
TV-502 Transverter	$300
MC-35S Microphone	$37
MC-501C Microphone	$35
HS-4 Headset	$28
PS-30 Power Supply	$230
DK-520 Digital Adaptor Kit	$10
Daiwa CNA-1001 Auto Ant. Tuner	$250
Transair TW-506 5W 6 ch. Marine Transceiver	$135
Transair TW-203 2W 3 ch. Marine Transceiver	$75
Kyokuto KDK FM-2025A Mk. II 2m 25 Scanning	$340
Katsumi MK1024 Electronic Keyer, programmable	$195

All prices are NET, ex SPRINGWOOD, NSW, on prepayment with order basis. All risk insurance is free of charge, allow for freight charges by air, road, rail or post, excess will be refunded. Prices are subject to changes without prior notice. All orders cleared on a 24-hour basis after receipt of order with payment.

Proprietor — NEVILLE CHURCH

CONTESTS

Reg Dwyer VK1BR
PO Box 236, Jamison 2614

NOVEMBER

8 & 22 CZECHOSLOVAKIAN PHONE/CW FCM
14/15 EUROPEAN RTTY
21/22 VK QRP CW/THE WORLD AR 10/81
21/22 ARRL PHONE SWEEPSTAKES CQ
28/29 CQ WWDX CW

DECEMBER

5 Dec. 81
10 Jan. 82 ROSS HULL VHF AR 10/81
12/13 ARRL 10m CQ

JANUARY

1982 —
10 COMPLETION OF ROSS HULL VHF CONTEST
9/10 1ST ANNUAL 40 AND 80 METRE PHONE 73 Mag./AR
23/24 WHITE ROSE 2ND SWL LF AR/FCM

1ST ANNUAL 40 AND 80 METRE CONTEST

Exchanges:
RS report plus DX country (to US stations).

Rules:
From 0000Z January 9 to 2400Z January 9 for 40 metre event.
From 0000Z January 10 to 2400Z January 10 for 80 metre event.
Categories: Single operators may work a total of 16 hours on each band. Off periods must be not less than 30 minutes each. Multi-operators may work 24 hours on each band. Off periods must not be less than 30 minutes each.

Entries:
Single operator: 40 metre band only, 80 metre band only.
Multi-operator: 40 and 80 metre bands.

Exchange:
RS report plus DX country.

Points:
1 point per QSO band with Continental, US and Canada or within your own country. All other contacts are 2 points each on each band. All contacts between 1000 and 1400 local time count double.

Multipliers:
1 multiplier point is earned for each US State (48 tot.), each Canadian Province (12 tot.) or DX country worked per band.

Logs:
For each band with SASE to Whidbey Island DX Club, 2665 North Busby Road, Oak Harbour, Washington 98277.
Entries dated after 11th February, 1982, will not be eligible for consideration.

THE WHITE ROSE RADIO SOCIETY 2ND SWL LF BANDS CONTEST

Date:
From 1200 GMT 23 January, 1982 to 1200 GMT 2 January, 1982. 18 consecutive hours of operation allowed.

Entries:
Phone or CW only. No mixed modes.

Bands:
1.8, 3.5, 7 MHz bands.

Logging:
The practice of logging a series of contacts made by one station will be depreciated.

Logs are not to have more than 10 contacts by the same station on each band.

Score:
1 point per station on your own continent, 5 points per contact outside your own continent.

Total points to be multiplied by the number of different countries heard on each band added together.

Logs:
To show date, time GMT, station heard, station worked, report at SWL QTH.

Points can be claimed for station heard. If both stations are claimed then both calls must be shown in the station heard column.

Entries:
To Contest Manager,
Mr. David McGregor G4IDJ,
C/o White Rose Radio Society,
8 Manor Court, Shadwell,
Leeds LS17 8JE, UK.

Post:
Logs must arrived before 16th March, 1982. (Comments on contest appreciated.)

COMMENT

Many thanks to those of you who did take the trouble to reply with your comments on both the John Moyle and the RD Contest.

The results of the RD Contest are well under way at the time of submission of this column and we should see the final results within the next issue or so.

All the best for now.

Reg VK1BR. ■

COMMONWEALTH CONTEST 1981

A comparison of the results of the Commonwealth Contest over the past three years tends to show that 1980 must have been the peak year of Sunspot Cycle 21!

Points scored by the top six stations in those three years ranged as follows:—

1979: 1st 6613 to 6th 5251.
1980: 1st 7293 to 6th 5679.
1981: 1st 5436 to 6th 4181.

Of course station activity due to publicity or lack of it plays a big part in the success of a contest, and this year, in areas other than Australia and Britain, publicity was sadly lacking, with the result that total logs submitted were down from 127 to only 100. Of these, 39 were from VK (79-41, 80-43), 40 from the UK, only 6 VEs, 3 ZIs and 12 from 11 other exotic areas

Not many VKs would have judged conditions very good at all, but the results showed that, whereas the rest of the Commonwealth seemed to "catch a cold", the locals were affected only to the extent of a few "sneezes".

Russ Coleston VK4XA is to be congratulated on his 5th placing overall, the highest VK placing for many years.

The leaders were:—

1.	VE6OU	5436	4.	G3FPQ	4438
2.	G3FXB	4895	5.	VK4XA	4365
3.	VE5RA	4794	6.	G3MXJ	4181

RECEIVING SECTION

3. Eric Trebilcock BCRS195 2245

AUSTRALIAN SCORES

5.	VK4XA	4365	60.	VK6RU	1228
8.	VK2BPN	4129	62.	VK1UD	1075
18.	VK7BC	3208	63.	VK8HA	1009
20.	VK3XB	3065	65.	VK3AUQ	955
23.	VK3AEW	2705	67.	VK3BDH	935
25.	VK2GW	2545	69.	VK3CG	925
29.	VK3KF	2180	70.	VK5FG	915
33.	VK3ZC	2123	72.	VK3KS	905
40.	VK6FS	1880	75.	VK3APN	845
41.	VK3CM	1775	76.	VK7GB	785
42.	VK3YD	1765	86.	VK2II	575
45.	VK7RY	1695	87.	VK4SF	555
48.	VK3YK	1625	90.	VK5DL	480
49.	VK3RJ	1565	91.	VK5HO	470
51.	VK2DID	1463	92.	VK3YL	460
53.	VK7CH	1410	95.	VK1BR	400
55.	VK5BO	1385	96.	VK2DKU	365
56.	VK3BKU	1370	98.	VK3ABA	320
57.	VK1CC	1345	99.	VK5NLC	275
58.	VK2DBL	1270			

Other Pacific area results:—

12.	ZL2BR	3848	46.	9V1TL	1690
22.	ZL1HV	2758	81.	ZL1IL	650
24.	T3OAT	2690	93.	VS6JR	450
35.	P29EJ	2110			

Single band entries among the above were:—
7 MHz — VK3APN, Overseae leader.
14 MHz — VK6RU, Overseas leader.
21 MHz VK3ABA.
28 MHz — VK8HA, Overseas leader, VK4SF.

The four man team contest between States resulted:—

VK3	10073	VK7	7098
VK2	9407	VK5	3250

Insufficient logs were submitted from other States to qualify as teams.

AUSTRALIAN AWARDS

The Gold Medallion for the leading VK entrant — Russ Coleston VK4XA.

The Silver Medallion for the leading State team — Ivor Stafford VK3XB, Andy Domjan VK3AEW, Eric Ferguson VK3KF, John Tutton VK3ZC.

The Bronze Medallion for the middle placed VK entrant — P. Van Louwersen VK2DBL.

HOW THE LEADERS MADE THEIR SCORES

QSOs/Bonus areas per band 80 to 10.

VE6OU	9/9	53/29	229/54	160/40	30/26
G3FXB	11/11	47/31	116/59	72/50	34/26
VE5RA	4/4	42/46	186/55	135/38	23/22
VK4XA	23/14	16/11	178/52	80/35	40/25
VK2BPN	18/12	32/18	126/49	78/35	38/25
VK3XB	13/10	6/6	93/33	88/38	13/13

Equipment used by the two top VE stations makes interesting reading:—

VE6OU:T4XB/MLA2500, R4B 3.5 MHz dipole/delta loop, 7 MHz dipole/2 el., 14 MHz 3 el., 21 MHh 4 el., 28 MHz 5 el., CL36.

VE5RA: T4XC/SB220, R4C, 3.5 MHz inv.-V, 7 MHz 4 el. yagi, 14 MHz 4 over 4 el. yagi, 21 MHz 6 over 6 el. yagi, 28 MHz 5 over 5 el. yagi.

RSGB COMMENTS

"First time in all the years I've been operating that I have taken part in 'BERU'. If they've all been like this, then I'm sorry I've missed them."—G3HAL.

The unique character of this contest is again reflected in the comments of entrants. A combination of somewhat indifferent conditions and rather poor publicity in Canada reduced the overall entry a little from recent years and the lower leading scores are evidence of the move away from the peak sunspot period.

Heading the table this year is John Sluymer VE6OU, who with the help of a very competitive antenna system, totalled 480 contacts and 158 bonuses to take the Senior Rose Bowl.

Al Slater G3FXB continues his domination of the UK scene with his ninth successive win of the Col Thomas Rose Bowl. Although QSO and bonus totals were well down on last year, his 280 contacts and 177 bonuses were sufficient to put him in overall second place, giving him the Junior Rose Bowl in addition.

hy-gain®

NEW
Extended
Double Zepp
Antenna Design

The Hy-Gain V2 is 2-meter extended double zepp vertical consisting of two stacked 5/8 waves properly decoupled to allow no RF on the coax feedline. Coax connects to the decoupler inside the antenna for complete weatherproofing. Mechanically the V2 has no equal. It's easy to assemble and all elements are corrosion resistant 6063-T832 aluminum with rustproof hardware. The V2 is a complete antenna that's ready to mount on any mast up to 2" (50.8 mm) in diameter.

Two sets of 1/4 wave radials and a centered feedpoint put the radiation at the horizon, not the sky! The V2 and two competitors were measured for radiation efficiency on a ground-reflection-range, which was designed according to IEEE standard 149-1979, and the results shown below were conclusive.

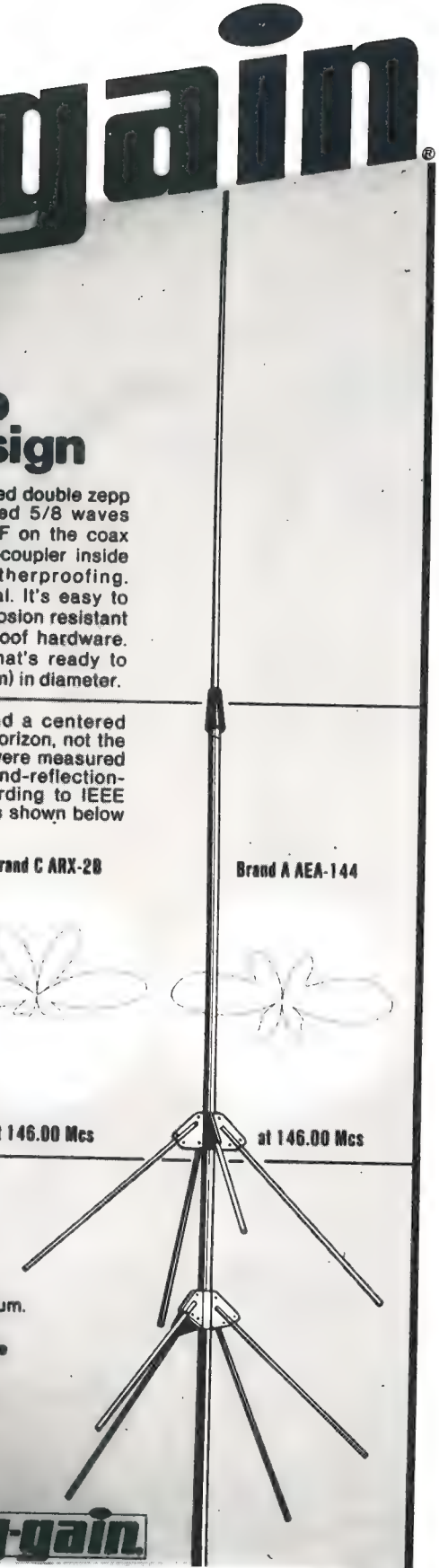
Hy-Gain V2 at 146.00 Mcs

Brand C ARX-2B at 146.00 Mcs

Brand A AEA-144 at 146.00 Mcs

Designed to operate from 138 MHz through 174 MHz, the V2 obtains a VSWR of less than 1.5:1 at resonance and has a 2:1 VSWR bandwidth of at least 7 MHz. The antenna's isolation from the support mast is 20 dB minimum.

The new V2 will equal or surpass the electrical performance of any competitive two stacked 5/8 wave antenna, regardless of gains claimed or your money back. Money-back limited to 30 days. If not satisfied, return to place of purchase.



TELEX hy-gain

AUDIO TELEX COMMUNICATIONS PTY. LTD.
MELBOURNE — Tel. 277 5311. 7 Essex Road, Mount Waverley 3149
BRISBANE — 52 1312
42 Commercial Road, Fortitude Valley 4006
SYDNEY — 633 4344
4 Little Street, Parramatta 2150

The varied band conditions put Russ Coleston VK4XA in sight of the leaders in overall fifth place and leading the Australian representation with 337 QSOs and 137 bonuses.

It is a pleasure to see increased participation in the receiving section this year. Top honours and the Receiving Rose Bowl go to Ron Thomas BRS15822. In second place is a newcomer, as far as recent years are concerned, C. Bradbury BRS1066, although he mentions that he did participate in 1938 and 1939! Another listener who has experience of "BERU" operations over many years is Eric Trebilcock BCRS195, of Melbourne, whose 40th entry in this contest puts him in third place.

Bonus points on the lower frequency bands were somewhat scarce. On 3.5 MHz the leading UK stations managed to find VE1, 2, 3, VO, VPS, 9H1, ZB2, 5N and C5, but there was no sign of ZL or VK this year. Western Canada and Oceania were limited to semi-local contacts on this band and there was no evidence of trans-Pacific openings.

7 MHz conditions were average, though not up to the levels of recent years. Most G stations worked the few exotic prefixes in Africa and the Caribbean without too much difficulty and the long path opening to VK/ZL was reasonable, although somewhat hard going, as the skip shortened and European signals built up in strength.

14 and 21 MHz carried the bulk of QSO traffic as would be expected. The short path from Europe to VK in the first 6 h. of the contest provided plenty of bonus points on both bands, with the opportunity to fill in any gaps next morning on the long path. 21 MHz appears to have remained active in Eastern Australia until about 2 a.m. local time on the short path, and European stations needed to keep an ear on this band to catch the sporadic long path openings which persisted throughout their night. However in VE the band seems to have closed fairly early with no "small hours" activity.

28 MHz was the disappointment this year. After very good conditions in recent events, scores were well down. Marginal openings to VK and VE from Europe provided some bonus points but were not sustained long eough to build up any significant number of contacts. Conditions were a little better in the southern hemisphere and VK8HA remarked that from his location this band was open during virtually the whole of the contest period.

The Australian entry accounts for almost 40 per cent of the tabulation and this is due in no small part of the efforts of John Tutton VK3ZC and Eric Trebilcock BCRS195, who for many years have undertaken "BERU" publicity for VK. The committee acknowledges their continued help with grateful thanks. We hope that a similar situation can be established for Canada and New Zealand

BERU 1982
12000Z 13th March to 1200Z 14th March. Rules in February AR. ■

WIA
Australian Radio Amateur
CALL BOOK
1981/1982

- Buy yours now whilst stocks last.
- Special price for members in some States.
- 16000 call sign listings.
- 45 pages reference data.
- Only $3.95 plus post on 300 g. weight.
- Obtainable from your Division, certain retail outlets and from —

MAGPUBS, Box 150
TOORAK, VIC. 3142

THE VIC IS COMMING! THE COMMODORE [illegible] IS COMMING TO CW
THE REVOLUTION IS NEAR!

CONTACT MY DEALERS IN YOUR STATE AND GET INVOLVED WITH COMMUNICATION BY COMPUTER —

NEW SOUTH WALES
The Microcomputer House Pty Ltd
Sydney (02) 699 4334
VICTORIA
G.F.S. Electronic Imports
Melbourne (03) 873 3939
SOUTH AUSTRALIA
Gulf Communication
Whyalla (086) 45 0208
QUEENSLAND
CW Electronics
Brisbane (07) 397 0808
(07) 397 0888

Brian Beamish VK4 AHD

TELEREADER CWR-685
Communication Computer

- ★ Fully self-contained with built-in green screen, monitor and keyboard
- ★ Automatic (or manual) transmit/receive switching of transceiver
- ★ Fully portable - 12-14 V dc (1.5amp)
- ★ 323 w x 276 d x127 h (mm) in size
- ★ Visual display in both transmit and receive
- ★ Optional printer (240 V ac) available
- ★ CW ● RTTY ● ASII communications
- ★ Shortwave listeners receive only unit available. - CWR 670
- ★ Similar keyboard layout as a standard typewriter with function keys

THE ALL *NEW!*
TERMINALL
FOR SYSTEM 80 & TRS 80 users

Turn your computer into a total CW, RTTY, ASCII communications centre. *TERMINAL* is an integrated system that links computer and transceiver.

- ★ Computer Interface
- ★ RTTY Demodulator
- ★ CW Demodulator
- ★ AFSK Tone generator
- ★ Hardware clock

bankcard welcome here

MACROTRONICS

MACROTRONICS SOFTWARE AND INTERFACES LINK MOST POPULAR MICROCOMPUTORS WITH A RADIO RECEIVER OR TRANSCEIVER TO GIVE DIRECT ACCESS TO WORLD WIDE RTTY, ASCII AND HIGH SPEED CW MESSAGE TRANSMISSIONS

from CW ELECTRONICS

416 LOGAN RD. (Pacific Hwy) STONES CORNER, BRISBANE. TEL: (07) 397 0808, 397 0888 PO BOX 274 SUNNYBANK QLD 4109. TELEX AA40811
A H: Brian VK4 AHD Telephone (07) 341 4767

Introducing **MIRAGE** *Communications Equipment*

AS REVIEWED IN AR, MAY 1980

FEATURES:

- Built-in Receive Preamp
- Adjustable delay for SSB
- Remote control operation with optional RS-1 Remote Head
- 1 to 2 Watts in — 15 to 30 Watts out — Excellent for HTs
- Automatic internal or external relay keying

SPECIFICATIONS

Frequency Range	144 to 148 MHz
RF Power In	200 mw to 15 Watts
RF Power Out	80 Watts nom. (10 in - 80 out)
Modes	SSB, FM and CW
Receive Preamp	10 db gain min. 2.5 db ± .5 db noise figure
DC Power	13.6 VDC 10-12 Amps
Size Weight	5.375" x 3" x 8", 3 lbs.

WARRANTY ON ALL MIRAGE PRODUCTS . . . . . 5 YEARS (1 year RF Power Trans.)

B108 2 METER AMPLIFIER
10W IN — 80W OUT

Amateur Net $249

DUAL PURPOSE — H.T.s or Transceivers

B 23	2 Metre Amplifier	2 W in, 30 W out	$119
B 1016	2 Metre Amplifier	10 W in, 160 W out	$369
B 3016	2 Metre Amplifier	30 W in, 160 W out	$309

Average and Peak Reading Wattmeter/SWR

Model MP1	HF	$165
Model MP2	VHF	$165

ATN ANTENNAS

56 CAMPBELL STREET, BIRCHIP, VIC., 3483
PHONE (FACTORY) (054) 92 2224 (OFFICE) (054) 92 2264

AROUND THE TRADE

YAESU'S NEW SUPER TRANSCEIVER: FT-ONE

The FT-ONE is a top of the line general coverage transceiver with a completely new design. Controlled by a microprocessor, the FT-ONE allows the complex operations today's amateur demands. All of the up-to-date convenient features are built-in, teamed with the FT-ONE's super high performance circuitry.

Wide Dynamic Range

The receiver front end utilizes a push-pull amplifier, consisting of two low noise power transistors and a high-intercept diode balanced mixer, providing a wide dynamic receiving range of more than 95 dB through the coverage.

Frequency Controls

The keyboard, UP/DOWN switches and main dial allow you to tune to any frequency within the 150 kHz-30 MHz range continuously, with resolution to 10 Hz. The full operating range can be searched, using the scanning control (UP/DOWN controls and keyboard entry resolution to 100 Hz). If you wish, you can stop the scanner on any frequency where a signal is present, in order to check the signal and band condition.

Convenient Filtering System

The filters in both the receiver and transmitter sections are 8 pole crystal filters. In the receiver section, the filtering system provides continuously variable bandwidth from 300 to 2400 Hz. Furthermore, the centre frequency of the filter can be adjusted to any desired point using the IF shift control for a solid copy of a signal on a crowded band. Also, the audio peak filter rejects unwanted high pitched carriers within the passband.

10 VFO System

The FT-ONE includes 10 VFOs for various frequency operations, allowing you to return to a desired VFO frequency, in the same manner as when using the memory function of earlier equipment. The Tx and Rx VFO selector lets you choose the desired VFO for both Tx and Rx, allowing split operation on any frequency within the coverage.

Full Break-In

The Full Break-in feature is most convenient for CW operators, providing a monitoring call-back feature during your CQ calls. Between each dot or dash the transceiver returns to the receive condition, allowing you to monitor your frequency.

General Coverage

The FT-ONE comes equipped for full band coverage from 150 kHz to 30 MHz continuously without band switch selection, so you can check the band condition of broadcasting stations operating on non-amateur bands (transmission on non-amateur bands is prohibited by the circuits).

Reliable Power Supply

The FT-ONE is equipped with a compact switching voltage regulator, which provides a stable voltage to both receiver and transmitter sections with high efficiency.

Convenient Features

Various convenient features such as VOX, speech processor, AMGC, variable threshold noise blanker, audio peak filter, notch filter, etc., are built-in features of the FT-ONE.

Specifications

Frequency coverage: Rx, 150 kHz-29.9999 MHz; Tx, 1.8 MHz-29.9999 MHz. Modes: LSB, USB, CW, FSK, AM, FM. Case size: 370 (W) x 157 (H) x 350 (D) mm. Weight: Approx. 17 kg. Power requirements: 100/117/200/220/234V AC; 13.5V DC. Power consumption: Power switched off for memory back-up — 3.5 VA (at AC); 0.95W (at DC); Tx, 560 VA (at AC); 270W (at DC); Rx, 90 VA (at AC); 36W (at DC).

Transmitter

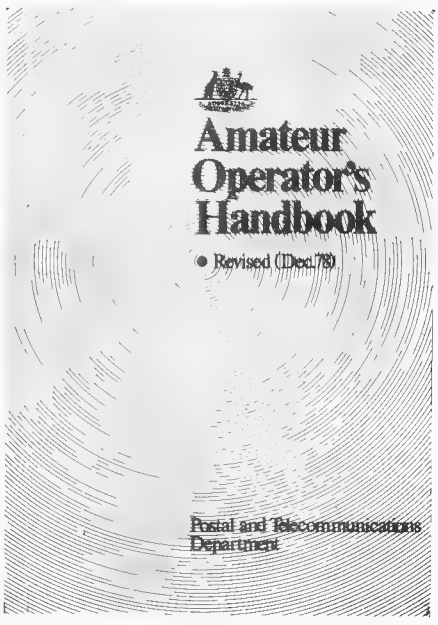
Carrier suppression: Better than 40 dB. Unwanted sideband suppression: Better than 40 dB. Spurious radiation: Better than 40 dB. Frequency response: 350-2700 Hz at 6 dB down. 3rd order IMD product: Better than —31 dB. RF output impedance: 50 ohms. Microphone impedance: low — 500-600 ohms.

Receiver

Sensitivity: 3 uV for 150 kHz to 1.7999 MHz (SSB). 10 db S/N: 0.25 uV for 1.8 MHz to 29.999 MHz. Selectivity: SSB, —6 dB at 2.4 kHz, —60 dB at 4.0 kHz; CWN, —6 dB at 600 Hz, —60 dB at 1.3 kHz; CWN, —6 dB at 300 Hz, —60 dB at 900 Hz; AM, —6 dB at 6 kHz, —60 dB at 11 kHz.

The FT-ONE will be available from Bail Electronic Services, 38 Faithful Street, Wangaratta 3677, Tel. (057) 21 6260, from about November 1981. ■

AMATEUR OPERATOR'S HANDBOOK



A must for every amateur radio enthusiast!

The Amateur Operator's Handbook, Cat. No. B 5042, outlines the regulations and conditions for the operating of amateur radio.

About one-third of the exam for Amateur Operators' Certificates of Proficiency (AOCP) is based on regulations, therefore the B 5042 is essential reading for anyone interested in becoming an amateur operator.

This handbook is the all-new updated version, including changes in the service since the previous version.

The handbook was previously only available from Government Publications, but Dick Smith has made a special purchase as a service to amateurs and aspiring amateurs. Now the Amateur Operator's Handbook is available for $3.60 from all Dick Smith Electronics stores. ■

MAGAZINE REVIEW

Roy Hartkopf VK3AOH

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

RADIO COMMUNICATION August 1981
Tropospheric Scatter Propagation (G).

CQ-TV No. 114
Colour Vision Mixing (P).

CQ July 1981
Special Antenna Issue.

CQ June 1981
SSB Monitorscope (P). Navassa Island DX (G). 432 MHz Satellite Antenna (C).

73 September 1981
Easter Island DX (G). The Deaf and Deaf-Blind Communication (G).

QST May 1981
Coherent CW (G). Coax Cable Antenna Traps (P).

QST June 1981
Coherent CW (P). ■

QSP

MARINE RESCUE

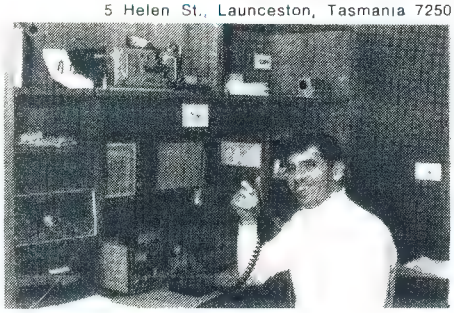
The American ketch "Ketch-up" ran aground and later sank in heavy seas on a reef about 260 km west of Port Moresby whilst heading for Darwin via Daru. A Mayday call, according to a report, was heard by VK6DY who alerted the Coastal Surveillance Centre in Canberra. When the exact position was confirmed PNG authorities were informed and sent out a patrol boat which rescued the retired Doctor of Los Angeles, the skipper-owner, and the other five people aboard. ■

CHURCHILL FELLOWSHIP

The Churchill Trust will soon be calling for applications from Australia of 18 years and over who wish to be considered for Churchill Fellowships tenable in 1983. Details and application forms may be obtained from The Winston Churchill Memorial Trust (M), PO Box 478, Canberra, ACT 2601. The aim of the Trust is to give opportunity, by the provision of financial support, to enable Australians (whether qualified or not in any specialty) to undertake overseas study or an investigative project of a kind not fully available in Australia. 59 Fellowships tenable in 1982 were announced earlier this year at a total cost of $450,000. ■

SPOTLIGHT ON SWLing

Robin Harwood VK7RH
5 Helen St., Launceston, Tasmania 7250



Recently, Radio Netherland's experimental transmissions of computer programmes via shortwave came unstuck. Unfortunately, as far as enthusiasts in North America and the South Pacific found out, somewhere along the route from the studios in Hilversum and the relay bases in Bonaire, Netherlands Antilles and Madagascar, the computer and audio became fouled up. Those able to copy the European transmitters in Lopik, were more fortunate in copying the signals, especially the TRS 80 and Pet Commodore programmes. Because the APPLE system utilizes a higher baud rate, nobody was able to obtain a printout of the programme.

Various suggestions have been advanced as to why the computer signal failed to enter in. However, the effects of multi-path propogation could have been significant factors as evidenced by similar effects on slow-scan TV signals. Radio Netherlands has also stated that it will be continuing experimental computer programme transmissions.

One way of overcoming the problems encountered so far could be that the signal be transmitted at half speed on a reel to reel recorder, and fed into the computer at normal speed, taking twice as long as at present to feed the programme. It must be borne in mind that these computer freaks are a very small minority of the total listening audience, and the majority do prefer to hear more relaxing sounds than the discordant tones and noises of computer audio.

This is the second experimental transmission by a major international broadcaster during the past 18 months, for it was during the middel of last year that Kol Israel in Jerusalem conducted tests with SSTV (slow-scan). Unfortunately the images were rather poor, because of multi-path distortion. Added to this the number of those capable of receiving SSTV are very small indeed, and it is surmised that Kol Israel has abandoned these transmissions for the present as not being feasible.

I notice that Voices, the magazine about shortwave programmes, has re-appeared after a hiatus of nine months. It was widely believed to have ceased publication, due to problems with sponsorship and advertising. However, it is now being issued in a quarterly format, and those initial subscribers who paid earlier will have their subscription extended to when payment runs out, which could be up to two years extension. It could conceivably encounter problems, so I would caution those contemplating taking out subscriptions. I do recommend the Review of International Broadcasting edited by Glenn Hauser of Knoxville, Tennessee. This reviews programmes of the various international stations, and has been published for many years now.

During the last week of September it really became confusing, for on the 27th Europe reverted back on to Standard Time, which meant many transmissions beamed to Europe were aired one hour later than previously. Compounding this, the USSR instituted their half-yearly frequency alterations and I am reliably informed that up to 50 per cent of the frequencies will be changing. This means a big headache for the frequency management personnel at the major international stations, who will put in many hours of overtime keeping abreast of the changes, and altering channels where necessary. I am at a loss to understand why the USSR does not change in line with the rest of the world on the first Sundays in March, June, September and December.

A number of broadcasters now have a communications type magazine programme with a wide variety of information for enthusiasts. The trend away from purely "DX" formats, while regretted by some, nevertheless is more attuned to the realities of interest amongst the listening audience. As international broadcasters don't exclusively cater for the random DXer, generally the DXers being too busy chasing signals than listening to ordinary programmes.

Several of these programmes are worth listening to, namely Media Network on Radio Netherlands. This is possibly the best of these, with regular weekly news. The recently revamped HCJB's DX partyline does contain some useful information from time to time. It is of interest to note that many are very similar in format to the BBC World Service Radio Club, which had its demise at the end of last year.

Our Radio Australia has recently commenced a monthly communications magazine called "Spectrum". Hosted by Dick Speekman, it can be heard on the first Sundays of the month at 0612 and 1212, as well as other times during that day.

Well, that is all for this month. Until next month, when we will be reviewing 1981 in retrospect, the best of DXings and 73. ■

BUYING OR SELLING GEAR?
HAMADS
MAKE IT HAPPEN FAST

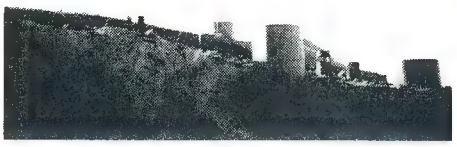
CLOSE-UP

THE ONLY AMATEUR IN COOBER PEDY — VK5NKM — HAS UNIQUE QTH

The front cover picture shows Kathy Marsh VK5NKM in her shack at Coober Pedy, the opal-mining town in the central South Australia about 800 km north-west of Adelaide. Not only is Kathy the only amateur in the town, but probably the only one in Australia whose house is about 6 metres underground.

Many of the 7,000 inhabitants of the isolated but fast-growing mining centre live in these so-called "dugouts" to avoid the surface temperatures which in summer approach 50 degrees Celsius for months on end. Dugouts are also warmer in winter, and many are quite palatial in their dimensions and furnishings. Kathy and her husband, Lester, have spent most of their time since arriving from Victoria some years ago in enlarging and improving the former opal mine which is now an impressive home.

Kathy prefers the 80 metre band but, as the second photo shows, has quite an antenna farm on the hilltop above the dugout, and has operated a good deal on 15 and 10 metres as well. She is the deputy matron of the Coober Pedy Hospital and also local controller for the State Emergency Service, so not surprisingly doesn't often have time to get on the air these days!



Photos: Ron Fisher VK3OM, Bill Rice VK3ABP. ■

CALL BOOK DATA REMINDER

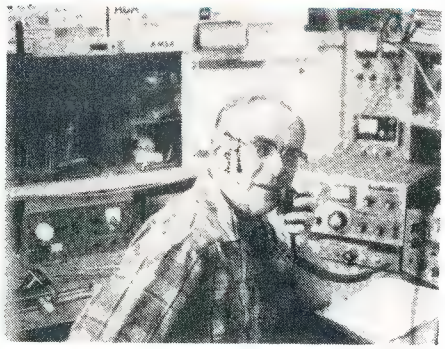
The Editor is aware that there are still a small number of errors, duplications and omissions as well as uncorrected addresses in the current edition.

The data in the Call Book is only as accurate and complete as the information supplied to the Institute.

PLEASE tell us about any errors, etc., and please tell your amateur friends to tell us too. *Write to* —

WIA
Box 150, Toorak, Vic. 3142

AMSAT AUSTRALIA



R. C. Arnold VK3ZBB

Charles Robinson VK3ACR has been appointed Amsat-Australia Co-ordinator by the Federal Executive of WIA following the resignation of David Hull VK3ZDH.

As mentioned on several occasions in these notes, David has received little co-operation from AMSAT in recent years despite his sterling service to the organisation in the early 1970s. I hope Charlie may be able to get Washington to realise that there is still an enthusiastic group of satellite operators in this country.

Sincere thanks to David for his past service as Co-ordinator and Command Station Controller, and best wishes to Charlie in his new role.

I shall continue to act as Publicity Officer.

I have received a copy of the UOSAT Technical Handbook. The handbook is in loose leaf form and will be amended and expanded as required in the future. The handbook is copyright and only available to members of AMSAT-UK, but I hope that we may be able to obtain permission to reprint a part or the whole of the text in "Amateur Radio".

Meanwhile if you require this most informative publication I suggest you become a member of AMSAT-UK and receive your own copy, together with other authoritative satellite information. Membership is a minimum of £E4 per annum, but I suggest you send £10 to cover postage costs by airmail. The Secretary/Treasurer of AMSAT-UK is:—

R. J. C. Broadbent G3AAJ,
94 Herongate Road,
Wanstead Park,
London, E12 5EQ.

Predictions for AMSAT OSCARS 7 and 8 for November, 1981, are:—

NOVEMBER

	OSCAR 7			OSCAR 8		
Date	Orb. No.	Eqx Z	Eqx °W	Orb. No.	Eqx Z	Eqx °W
1	31832	0028	90	18644	0039	75
8	31920	0103	98	18742	0111	83
15	32008	0138	107	18840	0000	66
22	32095	0018	88	18938	0032	74
29	32183	0053	96	19036	0104	82

I am now in a position to supply basic orbital elements for OSCARS 7 and 8 and, I hope, for UOSAT and Phase IIIB in due course.

These elements are described in an article by Tom Clark W3IWI in "Orbit" magazine, March/April 1981, and will probably be the only form of prediction for future satellites. This data is sent to me each time the satellites show a significant shift in parameters — for OSCAR 7 this is every month or so, for OSCAR 8 the figures change every week or ten days. If you would like these figures on a regular basis send me a supply (say 10) of self-addressed, stamped envelopes and I will pass them on to you each time I receive them.

The latest sets of elements available at time of writing are:—

		OSCAR 8	OSCAR 7
Epoch	To	263.53773404	250.4230546
Inclination	Io	98.8106	101.492
Rt Ascn	Oc	295.3972	264.9503
Eccentricity	Eo	0.0005706	0.001914
Argument of Perigee	Wo	280.2486	68.8888
Mean Anomaly	Mo	79.8157	291.3533
Mean Motion	No	13.96298956	12.53360433
Orbit No.	Ko	18066	31167

Tom Clark's article includes a programme written in North Star BASIC suitable for many of the popular home computers. I hope the article can be reprinted in AR to give guidance to those wishing to compute their own orbital data. (Note: The article is too long for this issue but it is hoped to reprint it soon.—Ed.)

As these notes were being prepared the launch of UOSAT was again deferred to early October. I hope there will be news of a successful launch for the next edition.

Preliminary orbit characteristics, assuming a normal launch are.—

Period: 95.504 min.
Height: 560 km.
Inclination: 97.48 .
Increment: 23.95° W/orbit.
Max. O/H pass: 12 min. 20 sec.

This information will be updated after launch. Please note that the 10 GHz antenna is to be LH circular. ■

EMC
(ELECTROMAGNETIC COMPATIBILITY)

If radio frequency interference is causing you a problem you are reminded that — "Advice on all types and aspects of interference (PLI, TVI, AFI, etc.) is available from the National EMC Advisory Service".

FORWARD DETAILS TO
VK3QQ,
Federal EMC Co-ordinator, QTHR.

BRIGHT STAR CRYSTALS PTY LTD

35 EILEEN ROAD, CLAYTON, VICTORIA, 546 5076
(ALL MAIL TO:— P.O. BOX 42, SPRINGVALE, VIC. 3171)

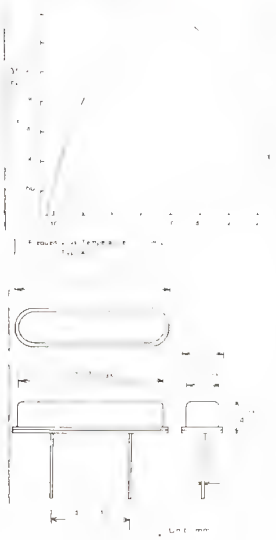
B.S.C. TELEX AA36004

INTERSTATE AGENTS
- **ROGERS ELECTRONICS ADELAIDE Phone 42 6666**
- **HOSE & EQUIPMENT SYDNEY 666 8144**
- **DILMOND INSTRUMENTS HOBART 47 9077**
- **WESTEST ELECTRONICS PERTH 337 6393**
- **FRED HOE & SONS PTY. LTD BRISBANE 277 4311**

WATCH CRYSTALS

SPECIFICATIONS

1.	Nominal Frequency	32 768 KHz
2.	Frequency Tolerance	+30 ppm/28° +1°C
3.	Drive Level	1uW max
4.	Series Resistance	31 0 kOhms max
5	Q Factor	40,000 min
6	Parabolic Curvature Constant	Less than —0 04 ppm/°C (Refer Fig. 1)
7.	Turnover Temperature	28 0°C +5°C
8.	Capacitance Ratio	700 max
9.	Storage Temperature Range	—30°C +80°C
10.	Operating Temperature Range	—10°C +60°C
11.	Aging rate	Less than +5 ppm/year
12.	Shock	Less than 5 ppm for 50 cm Hammer Shock Test
13.	Package Size	



DATA SHEET AVAILABLE. ALSO AVAILABLE CRYSTAL UNITS FOR QUARTZ CRYSTAL CLOCK.

WICEN

R. G. HENDERSON VK1RH,
Federal WICEN Co-ordinator

WICEN MOBILE/FIELD STATION CHECK LIST

What does the well equipped WICEN operator take with him when called out? The answer in a nutshell is enough to be self-sufficient in the field for at least 48 hours.

PREPARATION

Preparation is the key word, have your equipment prepared and other stores identified so that you don't take half a day to get mobile.

EQUIPMENT

Make up now all the cables, connectors and leads you need, don't put it off until called out. What's more, they will be of general use around the shack. That includes power cord adaptors, headphone-mike sets and field antenna, such as a good fox hunting 2 metre yagi. Make sure your equipment is capable of a rough journey and your nicad battery pack is charged.

VEHICLE

Spare tyres (inflated), spare fan belt, spare light bulbs and a tool kit are all helpful for getting you to where you want to go. Suppressed ignition systems, efficient alternators/generators and regulators help you to stay on the air when you get there. Remember your car must be reliable so fix the overheating radiator, worn parts and nuisance faults now.

YOURSELF

A faulty operator is expensive to replace, so make sure you are equipped to handle the job. Clothing can be vital if you leave the shelter of your vehicle. Don't enter bushfire territory wearing T-shirt, stubbies and thongs, this gear is also unwise for night time bush wear. Temperatures in Australia can range from —10°C to 40°C, so dress for the prevailing weather to avoid sunburn, frost bite and hypothermia.

PERSONAL EFFECTS

Amateurs are human so take with you the necessities of life. Items such as toothbrush, toilet paper, spare clothing, soap and towel will not only make you feel better, but more important for your associates, make you nice to be near as well. Sunglasses, sunburn cream, insect repellent, a torch and a good book will make the hours pass more pleasantly. To attend to the needs of the subject in hand, message pads, clipboards, pens and pencils, maps, compass, etc., will be necessary. For real comfort, bring along your tent, table and chairs, camp stretcher and sleeping bag.

THE INNER PERSON

Food for the complete WICEN body is essential, suffiice it to say that a hungry operator is a whingeing operator. Take along tins of Spam and meat, fruit and biscuits to sustain your operations for at least 48 hours. Also the necessary brew makings for tea, coffee, Bonox and a gas cooking set.

DISASTER KITS

Much of the material mentioned above can be assembled in an old tin trunk, battered suitcase or similar container to fit the boot of your car. Again it might be subdivided into two or three containers, say a radio equipment one, a clothing bag and a food/cooking kit. The first-named has uses on fox hunts and amateur radio conventions, the second for impromptu outings to the beach and the third for barbeque lunches.

CONCLUSIONS

From the thoughts above you should be able to draw up your personal check lists/load lists and assemble the gear. Do it now. Remembers the Scouts' motto "Be Prepared".

WICEN REGISTRATION FORMS

Most States have their own WICEN registration forms so the following notes will only record in a general way matters that might be included in them.

Identification: Name, address, call sign.

Contact details: Home and work phone numbers.

Availability: How long can you afford to be on duty?

Response time: How much time do you need to react to a call-out?

Vehicle: Type — cross-country capability.

Equipment: Transceivers, bands, modes.

Power supplies: Generators, mains supplies, batteries.

Antenna: Types and masts available.

Other facilities: Caravan, trailer, tents.

Previous experience: WICEN, SES, Services, VRA, etc.

Special skills: Bushwalking, caving, remote repeaters, etc.

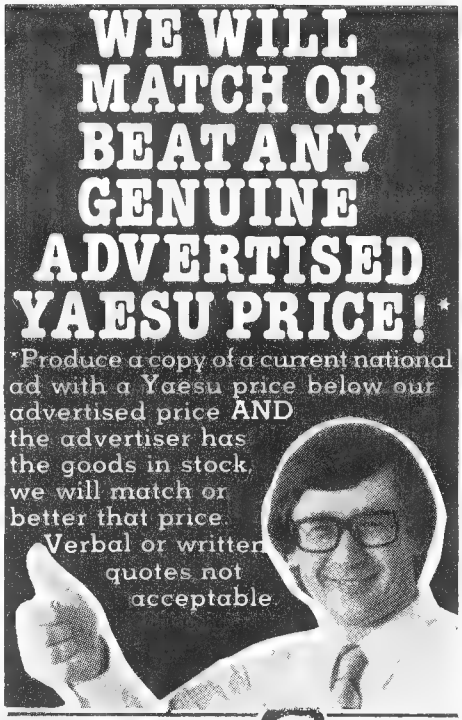
Some States have EDP programmes to sort and present the data and provide co-ordinators with a series of quick look-up tabulations.

Respect the delicate balance between confidentiality and having adequate information available to those who need it. Often an abbreviated contact list plus general capabilities (e.g. 2m FM mobile/fixed, HF/VHF, mobile HF only) is adequate for most WICEN office-bearers. ■

QSP

SECRECY PROVISIONS

According to an article in Worldradio, July 1981, the extisting Section 605 of the US Communications Act reads — "This section shall not apply to the receiving, divulging, publishing or utilizing the contents of any radio communication which is broadcast or transmitted by amateurs or others for the use of general public, or which relates to ships in distress." The amending bill submitted by Senator Goldwater proposes — "This section shall not apply to the receiving, divulging, publishing or utilising the contents of any radio communication which is transmitted by any amateur station, or by any station for the use of the general public, or which refers to ships, aircraft, vehicles or persons in distress." ■


WE WILL MATCH OR BEAT ANY GENUINE ADVERTISED YAESU PRICE! *
*Produce a copy of a current national ad with a Yaesu price below our advertised price AND the advertiser has the goods in stock, we will match or better that price.
Verbal or written quotes not acceptable.
DICK SMITH Electronics
MAIL ORDER CENTRE PO Box 321, Nth Ryde N S W 2113 Ph. (02) 888 3200
NSW AUBURN 648 0558 BLAKEHURST 546 7744 BROADWAY 211 3777 BROOKVALE 93 0441 CHULLORA 642 8922 GORE HILL 439 5311 PARRAMATTA 683 1133 SYDNEY 290 3377 WOLLONGONG 28 3800 NEWCASTLE (Opening Soon) CANB FYSHWICK 80 4944 QLD BURANDA 391 6233 CHERMSIDE 59 6255 SA ADELAIDE 212 1962 VIC MELBOURNE 67 9834 RICHMOND 428 1614 SPRINGVALE 547 0522 WA PERTH 328 6944 CANNINGTON 451 8666
NOTE: OFFER DOES NOT APPLY TO COMPANIES DISTRIBUTORS OR RESELLERS OF YAESU EQUIPMENT OR THEIR REPRESENTATIVES.
DSE8611M

RADIO TRADESMAN

We require

INDENTURED PERSONNEL

to service H.F. and V.H.F. transceivers and test equipment. As military equipment is involved, ex-servicemen would be highly desirable. The department will soon be expanding to meet future commitments.

Experience on S.S.B. and F.M. equipment is necessary. A knowledge of digital techniques, telecommunications equipment and associated test equipment would be an advantage.

Good conditions, 3 weeks sick leave, 4 weeks annual leave, retirement fund after 3 months and credit union facilities are offered to all employees.

Please apply to:

Katrine Green
Employment Officer
COMMONWEALTH AIRCRAFT CORPORATION LIMITED
304 Lorimer Street
Port Melbourne, Vic. 3207
Telephone 647 6111

SAVE MONEY

WHEREVER BATTERIES ARE USED —
PORTABLE GEAR, TAPE RECORDERS, RADIOS,
PHOTOGRAPHIC FLASH EQUIPMENT, BATTERY OPERATED TOYS, ETC. —
YOU CAN SAVE $! $! $!

PS 519 UNIVERSAL NI-CAD BATTERY CHARGER

- OPERATES FROM 240 VOLT AC MAINS
- ACCEPTS AA C D & 9 VOLT BATTERIES
- CHARGES BATERIES SINGLY OR IN GROUPS
- DIFFERENT SIZED BATTERIES MAY BE CHARGED TOGETHER
- CHARGING INDICATOR LAMP AT EACH BATTERY POSITION
- INCORPORATES BATTERY TESTER

BATTERY PRICES:

Type AA	**$4.15**
Type C	**$4.55**
Type D	**$4.55**

PRICE
$19.00
POST PAID
IDEAL CHRISTMAS GIFT

Can be recharged up to 1000 times! This is where you save real money

WILLIAM WILLIS & CO. PTY. LTD.
98 CANTERBURY ROAD, CANTERBURY, VIC. 3126 PHONE: (03) 836-0707

HF, UHF and VHF ANTENNAS BY ATN

	Gain dbi	Boom	Price incl. balun
15/11/10 mx			
ATN 20-30-1 rotary dipole			$40
10/11 mx model			
ATN 28-29-3B or 27-28-3B	9.5	3.5M	$70
ATN 28-30-3	9.7	3.5M	$89
ATN 28-30-5	12.0	6.5M	$149
ATN 28-30-6	13.2	8.3M	$199
6 mx			
ATN 50-502.5-5	11.9	3.5M	$95
ATN 50-53-8	14.2	5.5M	$149
ATN 50-53-11	16.2	9.0M	$185
2 mx			
ATN 144-148-8	12.7	2.2M	$55
ATN 144-148-11	14.6	3.8M	$65
ATN 144-148-16	17.0	6.3M	$85
ATN 144-148-13WS	17.3	7.0M	$85
70 cm Model (N Conns)			
ATN 420-470-6	10.2	0.6M	$45
ATN 420-470-14	14.2	1.5M	$59
ATN 420-440-11	15.7	1.85M	$65
ATN 420-440-15	16.7	2.85M	$75
ATN 432-16LB	17.2	3.7M	$85
UHF CB (N Conns)			
ATN 47-5	9.2	0.65M	$45
ATN 47-7	10.2	0.7M	$49
ATN 47-11	17.0	1.7M	$59
ATN 47-15	17.8	2.8M	$69
Amateur TV Translator			
ATN 580-14 (N Conns)	17.5	2.0M	$65

ALL LISTED HF ANTENNAS use top grade 6063-T83 seamless tapered and swaged tubing elements with non-brittle ABS tough weather resistant insulators. Booms are 2" OD (longer booms use guys supplied) and elements taper from ⅞" OD or ⅝" OD depending on length. Longer elements use positive rake on insulators to reduce unsightly sag. The best possible materials have been chosen to suit tough Australian weather conditions.

TRAPLESS TRIBANDERS, 13-30 MHz, Continuous Coverage (Includes new WARC & CB) (LOG PERIODICS)

Model	Elements	Boom (metres)	Gain dbi	Price with 2kW PEP Balun
13-30-6	6	6.0	7.5	$289
13-30-8	8	8.5	9.0	$399

TRAPLESS DUOBANDERS, 20-30 MHz, Continuous (Includes new WARC & CB) (LOG PERIODICS)

20-30-6S	6	4	7.5	$189
20-30-6L	6	6	8.5	$219
20-30-8	8	8.5	10.2	$299

MONOBANDERS — For 14 and 21 MHz

14-14.4-4	4	7	10	$269
21-21.5-4	4	6	9.9	$199
21-21.5-5	5	8	11.2	$289

Also available power dividers/couplers, quarter wave sleeve baluns and matching harnesses for stacks of two or more arrays; also 1:1 and 1:4 baluns in 200W or 1 kW and insulators for homebrew. Write for free catalogue.

ATN ANTENNAS
56 CAMPBELL STREET, BIRCHIP, VIC., 3483
PHONE (FACTORY) (054) 92 2224 (OFFICE) (054) 92 2264

ALSO AVAILABLE FROM: **VIC. (03) 873 3939** **VIC. (03) 789 3412** **TAS. (002) 47 6674** **TAS. (003) 31 7075** **W.A. (09) 328 9229** **S.A. (08) 47 3688** **QLD. (07) 397 0808** **N.S.W.**

AWARDS COLUMN

Bill Verrall VK5WV
7 Lilac Avenue, Flinders Park, SA 5025

For our RTTY enthusiasts, here are details of two awards available from within VK for working/printing stations on the RTTY mode.

THE WESTERN KEYBOARD BASHERS AWARD OF PERSEVERANCE

The Western Keyboard Bashers' Award of Perseverance is offered to all amateurs or SWLs who have contacted or, in the case of SWLs, printed ten (10) Western Australian amateurs on RTTY on any band. It is hoped to encourage the seeking of VK6 amateurs by other States and possibly other countries. Also available will be various endorsements, such as all on one band, QRP working, etc.

Rules

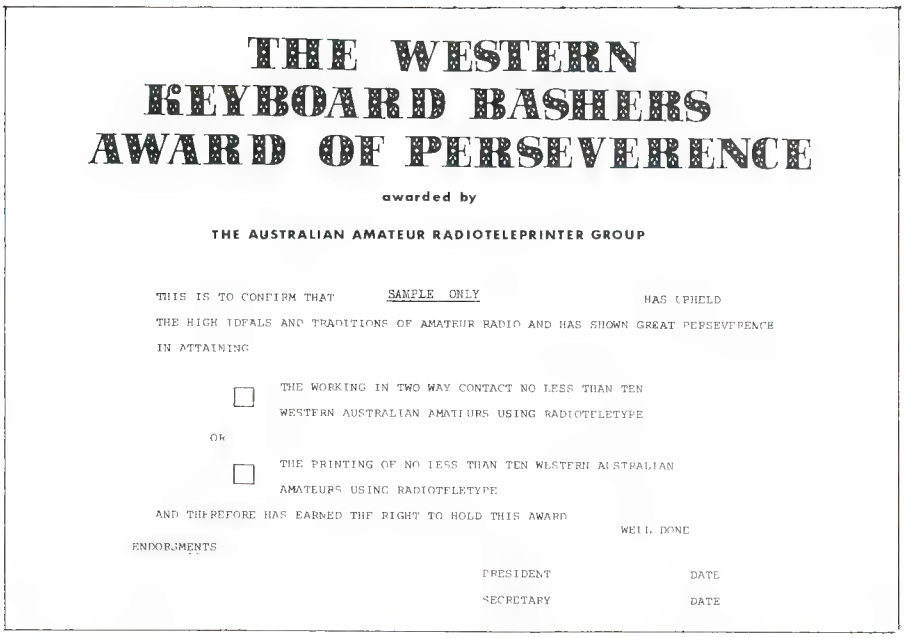
1. Contacts with all WA amateurs with either Full or "Z" calls are permitted.
2. The only mode permitted is RTTY.
3. Only one (1) contact per WA station is allowed to count towards the award.
4. All contacts must be two-way RTTY contacts except for the SWL class.
5. All contacts must be listed showing date, time and frequency and should be verified by one other amateur who should sign the log as well. QSL cards should not be sent.
6. All contacts after the 1st July, 1978, are eligible.
7. Cross band or cross mode contacts are not countable.
8. A fee of $1.00 should be enclosed to cover postage, etc.
9. Members of the AARTG are permitted to apply for the award.

Applications

All applications and enquiries should be directed to—Secretary, Australian Amateur Radio Teleprinter Group, Box N1002, GPO, Perth, WA 6001.

Description

This award is printed in two colours on white paper. The title is in red and all other printing in black. The award measures 300 mm x 210 mm.



THE WESTERN KEYBOARD BASHERS AWARD OF PERSEVERENCE

awarded by

THE AUSTRALIAN AMATEUR RADIOTELEPRINTER GROUP

THIS IS TO CONFIRM THAT SAMPLE ONLY HAS UPHELD THE HIGH IDEALS AND TRADITIONS OF AMATEUR RADIO AND HAS SHOWN GREAT PERSEVERENCE IN ATTAINING

☐ THE WORKING IN TWO WAY CONTACT NO LESS THAN TEN WESTERN AUSTRALIAN AMATEURS USING RADIOTELETYPE

OR

☐ THE PRINTING OF NO LESS THAN TEN WESTERN AUSTRALIAN AMATEURS USING RADIOTELETYPE

AND THEREFORE HAS EARNED THE RIGHT TO HOLD THIS AWARD

WELL DONE

ENDORSMENTS

PRESIDENT DATE

SECRETARY DATE

THE SOUTH EAST QUEENSLAND TELETYPE GROUP AWARD

This award is open to all transmitting and listening amateurs who gain award points in the following manner:—

Rules

1. Australian amateurs must score five (5) points, overseas amateurs must score three (3) points.
2. To qualify, a station must, where possible, copy the official station of the South East Queensland Teletype Group, VK4TTY, during a news broadcast and, in the case of a transmitting amateur, participate in the callback (2 award points). A portion of the printout of the news broadcast together with the date, time, frequency and the broadcast number are to accompany the request for the award.
3. Additionally, a transmitting amateur must work three member stations of the South East Queensland Teletype Group on RTTY (1 point each). Log extracts and/or printouts are to be included with the award application, and each member station may be counted only once towards the award.
4. Listening amateurs should, in lieu of 3, forward log extracts and/or printouts of the three contacts involving different member stations of the South East Queensland Teletype Group (1 point each).

Applications

Applicants for the award should forward the above information, together with one dollar Australian or 5 IRCs to cover postage and printing costs, to the Secretary, SEQTG, PO Box 184, Fortitude Valley, Qld. 4006, Australia.

Description
This award is printed in two colours on high quality parchment paper and features and illustration of a Model 19 printer in gold in the background, and all printing in black. The surround is also in gold and the award measures 300 mm x 210 mm.

SWL CENTURY CLUB AWARD
This WIA award for SWLs has been on the books for a long time, but I have not been able to find any records or sample since I have been FAM. This was brought to the attention of the Federal Executive and it was decided at the last Federal Convention to delete it from the awards programme because of lack of interest.

Therefore this award will lapse and be deleted from the WIA records on 31st December, 1981, unless I receive any enquiries.

CORRECTIONS
The following corrections are made to the WIA award listings which appeared in the September 1981 issue:—

1. Under DXCC top listing phone, read: VK6LK 307/321, VK4PX 297/312.
   Under open, read: VK3AHO 294/326.
2. Under DXCC amendments, CW, read: VK2SG 138/148.

Good hunting. ■

INTERNATIONAL NEWS

AMATEUR RADIO RE-BIRTH IN CHINA
One item of considerable potential interest this month. Here is the text of a press release statement kindly forwarded to the WIA by VS6CT, the President of the Hong Kong Amateur Radio Transmitting Society, who commented in a covering letter:—

"I am hoping that this will be the beginning of further contacts and I, personally, am hoping that in the event that China only initially starts communications internally, that we, as part of mainland China, will be privileged to assist in the training and helping them to emerge into our community of modern day amateur radio."

This is the press release:—

"Hong Kong, Saturday, 12th September, 1981.

The Boeing Employees' Amateur Radio Society (BEARS) delegation arrived in the PRC on September 4th, 1981, and departed on 12th September, 1981. We were the first official international amateur radio delegation to visit China in more than 32 years. Our host was the Chinese Institute of Electronics, a branch of the 4th Ministry of Machine Building. The delegation members consisted of C. P (.Pat) West W7EA, delegattion leader, H. (Henry) Oman K7HO, R. W. (Bob) Hudson K7LAY, W. P. (Bill) Showers KC7CF.

All the delegation members are Boeing employees from Seattle, Washington, with a total of more than 110 years of Boeing service. Our other sponsor was the Western Washington DX Club. Contributors to our expedition included the R. L. Drake Company, who supplied two complete TR7 stations; Telex Hygain, who supplied two tape dipoles anntenas; and ARRL, who supplied a copy of the film 'Wide World of Amateur Radio' and a few books. Our delegation prepared and presented a four hour slide presentation covering amateur radio in the USA. This presentation was made in each of the cities that we visited. Although we did not expect to operate we were permitetd to set up a demonstration station in Beijing and communicate with our home city, Seattle. This historic event occurred at about 10 p.m. Beijing time on September 6th. Our contact in Seattle representing our two clubs was W7PHO and our call sign in Beijing, also representing our two clubs, was K7LAY. We are very sorry that we could not talk to more stations. The Chinese advised us that our transmissions were the first authorised amateur radio communication demonstration in more than 32 years, truly an historic event. This contact signifies the increasing friendship between our two nations.

A second historic event occurred on September 9th. With the assistance of our delegation in Shanghai, the Chinese in Beijing installed a Drake TR7 station and the Chinese in Shanghai also installed a Drake TR7 station. Successful communications were established between Beijing and Shanghai by Chinese operators for the first time in more than 32 years. The operator in Beijing was Chen Ren-Mo, and the operator in Shanghai was Hsu Y.C. Mr. Hsu was licensed many years ago as XU8CH and C1CH. Although propagation was not good between Beijing and Shanghai, communications were established about 10.45 p.m. on September 9th.

The station in Beijing used the call sign CIE and the one in Shanghai used the call sign K7LAY. Both stations were heard in many countries with strong signals. The Drake equipment performed excellently despite much rough handling during transportation.

The Chinese asked us to tell the world that their top Government leaders are solidly behind amateur radio and before too long China expects to establish many friends throughout the world through the media of amateur radio.

Our delegation was overwhelmed by the reception we received in China and very honoured to be the first official amateur radio delegation to China and to demonstrate amateur radio. In China we met many oldtimers and our meetings with them were precious events in all our lives.

We are very appreciative to our host in China, the China Institute of Electronics, and also to the China National Radio Sport Commission and the Shanghai Institute of Electronics."

A WIA member aboard HMAS Swan on a visit to the area at the time also reported this story and added that the warship's visit to Shanghai was the first of an Australian warship to China since 1949.

RECIPROCAL LICENSING
Several members have written about their own experiences with amateur licensing in overseas countries as the result of an article in the WIA 1981/82 Call Book and September 1981 AR, page 20.

VK2ZXU writing about amateur licensing in France in 1978 commented "It is possible to obtain a form of temporary licence by making local application . . . what one does is to aproach the Chief of the PTT in the Department one resides in (or alternatively in Paris — 'Immeuble PTT Reseau International, 75584 Paris Cedex 12') and apply for a temporary permit. You need the *original* of all licence papers to confirm your Australian status, together with all travel and residential documents. It helps to have a recommendation from a French operator and to be using type approved commercial equipment. There can be considerable time delays so one should not try this for short visits, e.g. less than six months.

"Approached in the right way with all necessary documents, some local advice and recommendation, and at least four passport photos . . . it is surprising what can be done. One false move, however, and you may as well go home and start again."

In a letter from VK5BW Alan comments "VKs may easily obtain visitors' licences in Denmark, Finland, Holland, Ireland, Liechtenstein and Norway. Call signs in the UK (for visitors) are issued as G4 to Commonwealth country amateurs (VK, VE, ZL, etc.)."

PAPUA NEW GUINEA
From the May 1981 issue of "Garamut" the PNGARS newsletter comes news that their QSL Bureau is now via Box 141, Port Moresby (instead of Box 204, Port Moresby, the Society's address), the Society's 1981 subscription is K5.00, and that classes are held regularly in Port Moresby through P29PS. Some officers of the Society for 1981/81 were listed as President, P29LS; Secretary, P29CH. The Society provided communications for the Independence Safari Rally. The official PNGARS net is on 3565 kHz at 09.30Z Thursdays. ■

SUPPORT OUR ADVERTISERS

NOVICE NOTES

Edited by Ron Cook VK3AFW

A BOO-BOO IN JUNE?

In the June issue we discussed PEP power and Paul VK5ZPU read the column and has written in to say that I was in error in using the term *watts RMS*. After due consideration I accept Paul's criticism; as they say in the classics "There ain't no such beast as RMS power". Electrical power is the product of DC volts and DC amps or the product of RMS volts and RMS amps when the power is dissipated in a resistive load and when a steady state has been reached.

When an RF signal is pulsed or fed to a reactive load things get a bit more complicated. I had intended to avoid those complications and, in keeping with fairly common industrial practice, I used the term *watts* RMS to differentiate a steady AC power dissipation (i.e. key down CW) from instantaneous power or average pulse power for example. There is no disputing that my use of that term is technically incorrect and for that error I apologise. To make my article quite correct delete the "RMS" after the words "produces 7 watts" and "by definition 1 watt".

To make the matter clear I reproduce the offending paragraph and Paul's letter.

Consider a simple CW transmitter running, say, 10 watts DC input to the final amplifier. Now assume that it is an efficient amplifier and produces 7 watts RMS when connected to a 50 ohm resistive load. The load will heat up and will get just as hot with the 7 watts of RF as with 7 watts of DC. This is of course to be expected as by definition 1 watt RMS of RF produces exactly as much heat as 1 watt of DC.

Page 40, Amateur Radio, June 1981.

Dear Sir,

I wish to point out an error in the discussion on Peak Envelope Power in Novice Notes by Ron Cook VK3AFW in AR's June issue 1981. At the bottom of the first column he definies 1 watt RMS as equivalent to 1 watt of DC. This is incorrect. The correct statement is that 1 watt *average* power of an RF waveform (or just 1 watt RF) is equivalent to 1 watt DC. RMS quantities of *voltage* and *current* are important for finding the equivalent heating power of a transmitter, etc., because average power $Pav = Vrms \times Irms$ for a resistive load irrespective of waveform. This is what Ron has calculated for an unmodulated CW carrier but he calls it RMS power, which is incorrect.

To demonstrate the difference between RMS power and average power, it is possible to calculate from first principles the ratio between RMS and average powers for a sinewave as follows, but bear in mind that RMS power is quite a meaningless quantity.

Consider a sinusoidal voltage and current flowing in a resistor as in Fig. 1. The voltage varies with time according to

$$v(b) = Vp \sin t$$

and the curent according to

$$i(b) = Ip \sin t$$

hence instantaneous power is

$$p(t) \quad Vp \sin t \times Ip \sin t$$
$$v(t) \times i(t)$$

i.e. $p(t) = Vp\ Ip \sin^2 t$, as shown in Fig. 2.

The RMS value of any periodic waveform x(t) is defined in mathematical terms as:—

$$Xrms = \sqrt{1/(2\pi) \int_0^{2\pi} [x(t)]^2\, dt}$$

or —

$$(Xrms)^2 \quad 1/(2\pi) \int_0^{2\pi} [x(t)]^2\, dt$$

For the instantaneous power waveform:

$$(Prms)^2 = 1/(2\pi) \int_0^{2\pi} (Vp\ Ip \sin^2 t)^2\, dt$$
$$= (Vp^2\ Ip^2)/4 \times 6/4$$

(I have left out several lines of Paul's working to help the typesetter.—VK3AFW.) or —

$$Prms = Vp\ Ip/2 \times \sqrt{6/2}$$
$$= Pav \times 1.225$$

i.e. RMS power = 1.225 × Average power for a single wave.

Note that the RMS power is greater than the Average power, a fact often exploited by amplifier salespeople to exaggerate their power output figure.

I hope the above discussion has helped to clear the confusion and banned the use of the confusing almost always incorrectly used term "RMS power".

Yours faithfully,

Paul Lucas VK5ZPU.

So there we are. RMS power exists as a mathematical concept only. Real power, the stuff that boils water, etc., is produced by effective voltages and currents. Any AC signal of any wave shape can produce power and, for a resistive load, it is possible to calculate the power if we can measure the voltage and current and determine a value for each such that their product is equal to the power (heating effect) produced. These values of AC voltage and current are the effective values. It happens that if we know the wave shape we can calculated the effective values. An effective current is one that produces the

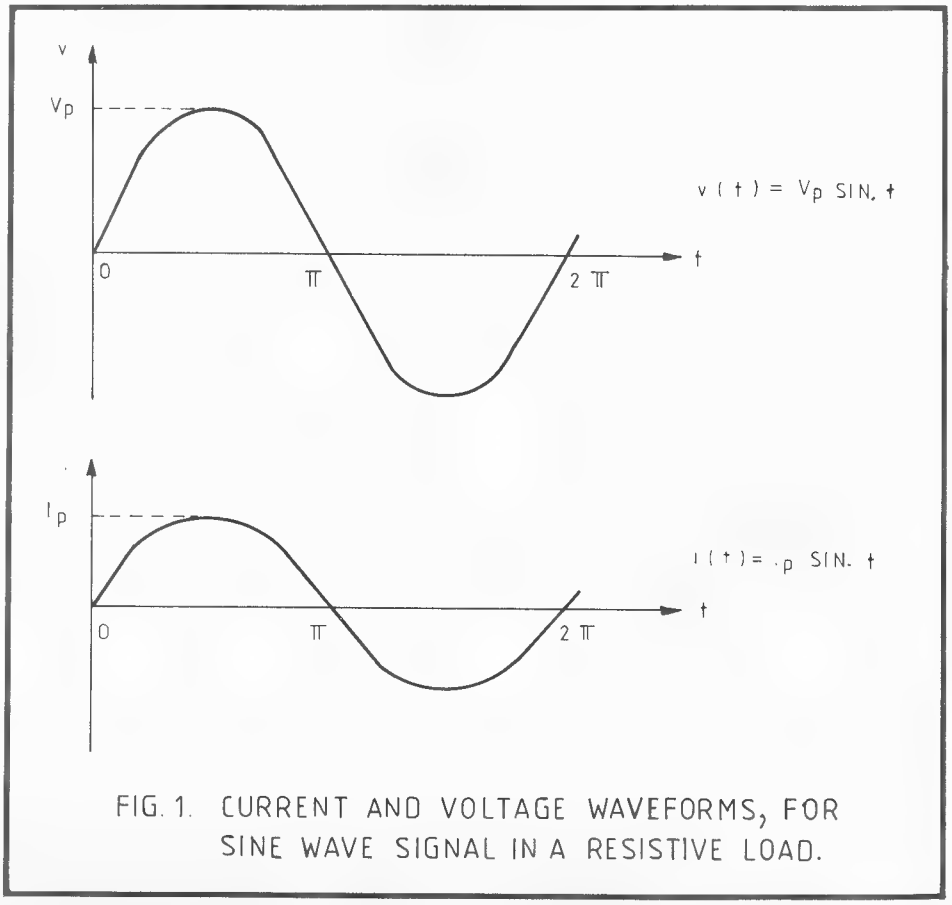


FIG. 1. CURRENT AND VOLTAGE WAVEFORMS, FOR SINE WAVE SIGNAL IN A RESISTIVE LOAD.

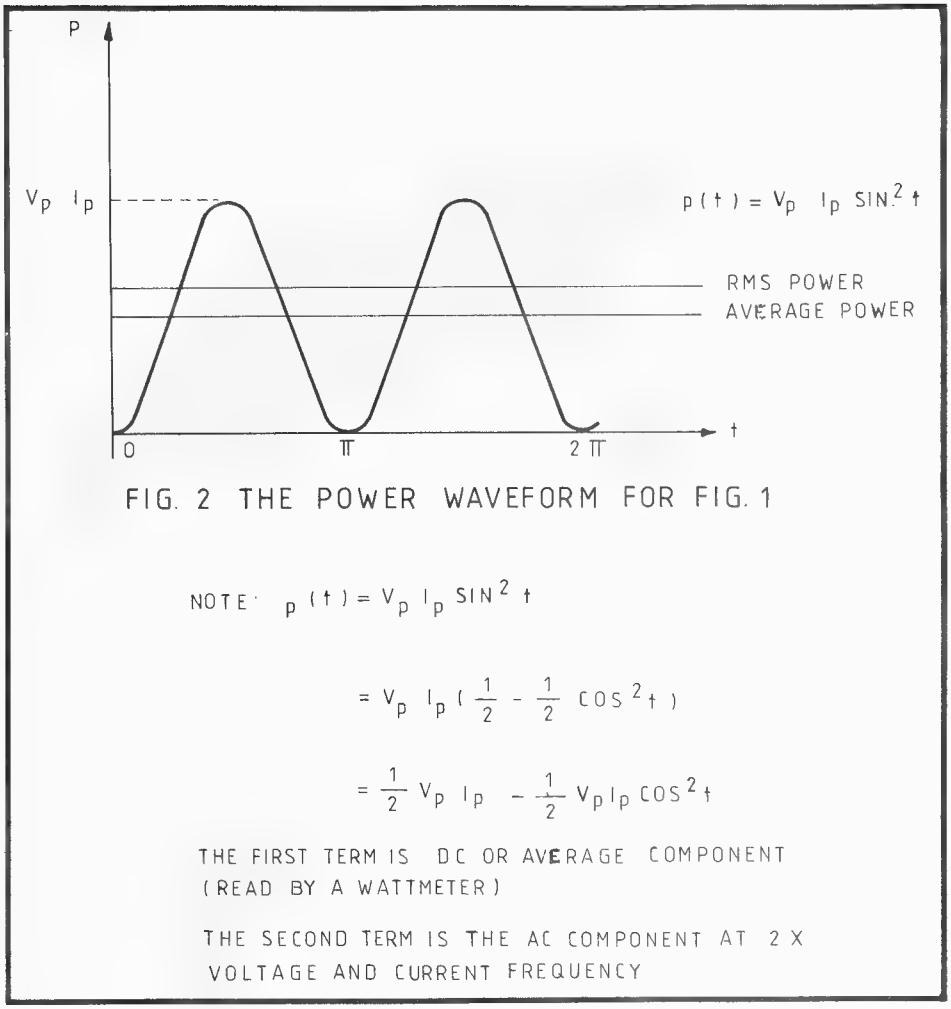


FIG. 2 THE POWER WAVEFORM FOR FIG. 1

NOTE: $p(t) = V_p I_p \sin^2 t$

$$= V_p I_p \left(\frac{1}{2} - \frac{1}{2}\cos^2 t\right)$$

$$= \frac{1}{2} V_p I_p - \frac{1}{2} V_p I_p \cos^2 t$$

THE FIRST TERM IS DC OR AVERAGE COMPONENT (READ BY A WATTMETER)

THE SECOND TERM IS THE AC COMPONENT AT 2 X VOLTAGE AND CURRENT FREQUENCY

same heating effect as a DC current of the same numeric value. So 1 amp effective produces exactly as much heat as 1 amp DC, i.e. it has the same effect.

The mathematical procedure to calculate the effective value involves taking the Root Mean Sum of the Squares or RMS for short, as Paul has done. Hence effective values of voltage and current are called RMS values.

Well that's pretty heavy stuff for beginners. Don't worry if you don't follow Paul's calculus, it's the answers that count, not an understanding of the mathematical derivation. Thank you for writing in, Paul, I appreciate your efforts and I hope we have sorted out another problem.

OLD CO-AX FOR SALE

I cannot emphasise enough the importance of an efficient *antenna system.* This includes not only the radiating section but also the feedline which is usually coaxial cable. The cable may be old — is it lossy due to corrosion caused by water getting into the braid? (Perhaps you forgot to seal the exposed end at the antenna). The cable might be new but cheap — is it lossy at 28 MHz? The answer to this and any other question of a similar nature is easy if you have a VSWR meter and a CW source with an adjustable output; there is a catch which is explained.

To measure the loss of a length of cable all we need to do is to short one end and measure the VSWR at the other. If the cable has no loss the VSWR meter will read infinite VSWR, i.e. there will be no change between forward and reverse indications. To avoid damage to the RF source it should be ascertained whether or not it will operate into high VSWR loads. An FT7 with the CW level control modification can be set to, say, 1 watt out into 50 ohms and should be quite safe to use for these tests; keep an eye on the collector current and do not let it exceed 1A.

Suppose that we find that the VSWR is infinite. This means that all the power sent into the cable has travelled to the short, been reflected, and travelled back to the transmitter. No power has been absorbed by the cable.

Suppose the cable has a 3 dB loss. By the time the power pushed into the cable reaches the short, half has been absorbed by the cable. All this power, 50 per cent, will be reflected but by the time it reaches the sending end again only half the reflected power has made it back as the 3 dB loss in the cable has again absorbed half. Thus the reflected power is only 25 per cent of that that started out. This will show as a VSWR of 3 : 1. We can calculate the cable loss by measuring the VSWR if we know the formulae. John Frank WB9TQG discusses this in May 1981 Ham Radio.

The formulae for gain or less in dB, a, is:—

$$a = 10 \log (P2/P1) \text{ dB}$$

where —

P1 is the forward power and
P2 is the reflected power.

Now we want the attenuation or loss for a single trip, i.e. we want to know the loss between the transmitter and the antenna. So the formulae becomes:—

$$a = 5 \log (P2/P1) \text{ dB}$$

If your VSWR meter doesn't indicate forward and reflected power then the formulae for cable loss becomes:—

$$a = 5 \log [(SWR - 1)/(SWR + 1)]^2 \text{ dB}$$

Suppose we find that the SWR is 2 :1. Then —

$$a = 5 \log [(2 - 1)/(2 + 1)]^2$$
$$5 \log [1/3]^2$$
$$5 \log 0.1111$$
$$-4.8 \text{ dB}$$

So the cable loss is 4.8 dB, a loss is indicated by the negative sign.

Now many VSWR meters only have a red band above 3 : 1 and no markings. If the meter has a scale marked 0 to 1 as well as SWR indications we can use a different formulae. If your meter does not have a linear scale marked 0 to 1, then you can connect another meter in parallel with the inbuilt meter. A 0-50 uA meter with a 0 to 1.00 scale, such as may be found on a multimeter, would be ideal.

Set the sensitivity and/or power level to obtain a reading of 1.00 full scale on the "forward power" or "set" position. Switch to the "reverse power" position or "SWR" position. The meter will read less than 1.00 unless the cable has no loss. By squaring the reverse reading we get the power ratio directly. For example, if the meter reads 0.90 on "SWR" then the reflected power ratio is 0.90 x 0.90 = 0.81. Using the appropriate formulae:—

$$a = 5 \log (P1/P2)$$

we get —

$$a = 5 \log 0.81$$
$$= -0.46 \text{ dB}$$

So our cable loss would be less than half a decibel. Table 1 shows the results for other reverse readings. The results may be plotted on a sheet of graph paper and a smooth curve drawn through the points if you wish.

Having made the measurement you must decide if the result is acceptable. Table 2 gives attenuation figures for the two most common coaxial cables.

THE CATCH

Actually the losses you measure will be greater than will occur if the load (antenna) is correctly matched. Fig. 3.18 of the 12th Edition of the ARRL Antenna Handbook gives the corrections. Table 3 is extracted from that Figure.

Reverse Meter Reading (FSD = 1.00)	Reflected Power Ratio	VSWR	Cable loss (dB)
1.00	1.0	Infinite	0.0
0.90	0.81	19:1	0.46
0.80	0.64	9.0:1	0.97
0.70	0.49	5.7:1	1.5
0.60	0.36	4.0:1	2.2
0.50	0.25	3.0:1	3.0
0.40	0.16	2.3:1	4.0
0.30	0.09	1.9:1	5.2
0.20	0.04	1.5:1	7.0
0.10	0.01	1.2:1	10
0.0	0.0	1.0:1	Infinite

TABLE 1:
CABLE LOSS FROM VSWR TESTS

NOTES:

1. The VSWR and cable losses are calculated from the reflected power ratios and are rounded to two significant figures. Greater accuracy would require better measuring equipment than most amateurs possess.
2. FSD means full scale deflection.

Cable Type	Nominal Attenuation (dB/100m) at various Frequencies (MHz)							
	1.8	3.6	7.0	10	14	21	29	52
RG58	2.2	3.0	4.0	4.6	5.3	6.6	7.8	11
RG8	0.8	1.2	1.6	1.8	2.2	2.7	3.3	4.5

TABLE 2:
NOMINAL ATTENUATION OF RG58 AND RG8 COAX CABLES

To find the nominal attenuation of your cable multiply its length (in metres) by the attenuat on at the test frequency and divide by 100. (The above data based on information from Acme Enginering Co.)

Matched line loss (dB)	Additional line loss (dB) for various VSWRs			
	1.0:1	2:1	5:1	20:1
0	0	0	0	0
0.5	0	0.12	0.64	2.9
1	0	0.20	1.1	4.2
3	0	0.38	2.0	6.3
6	0	0.47	2.4	7.2
10	0	0.51	2.6	7.4

TABLE 3:
ADDITIONAL LOSS CAUSED BY STANDING WAVES

Note that values are approximate. See text for source.

It may not be obvious but cable losses of less than 3 dB are difficult to measure accurately if we use the VSWR meter and want to know the loss when the load is matched. For losses greater than 3 dB the accuracy gets better and is quite good eough for most amateur applications.

Why does VSWR increase loss? Well the voltage across the cable is much higher in parts and so the dielectric is under more stress and so the losses are higher. Also the current is higher in some areas and so the power lost due to cable resistance rises. As power is proportional to current squared the losses increase very rapidly with increasing VSWR. (The current has the same standing wave ratio as the voltage.)

Suppose fo rexample you measure a line loss of 4 dB. It is likely that if the cable were matched at the load then the line loss will be about 3 dB. A line loss of 2 dB measured by our method will be mainly due to the VSWR and the matched cable loss will be perhaps 0.5 dB or so.

Therefore it is strongly recommended that cable loss tests be done at the highest frequency available, say 29 MHz, so that larger attenuations are measured and the errors reduced.

Perhaps some knowledgeable reader with a computer could calculate a table of cable attenuation vs. VSWR, taking into account the extra loss caused by VSWR. Most tests, even the ARRL, do not take into account the additional loss caused by VSWR, hence many people may have discarded cable without good cause. Fig. 3 shows how attenuation can be measured without these errors. Two similar power meters are required.

Don't discard the VSWR and short circuit method as it does always give indicative results. If you have two similar lengths of cable, one weathered and one in mint condition, it will give a good comparison.

HIDDEN MISMATCHES?

You may have guessed it by now but if your cable has some losses it will make your antenna match look better. From Table 1 we see that a cable with 10 dB loss will give a VSWR at the transmitter of 1.2 : 1 even if it is open or short-circuited at the antenna! The transmitter will be quite happy with such a load but you won't work much DX. Connect an aerial with a VSWR of say 4 : 1. The transmitter may put out say 10 watts. The 10 dB loss in the cable consumes 9 watts, leaving 1 watt for the aerial. It accepts 0.64 watts and reflects 0.36 watts. Only 0.036 watts arrives back at the VSWR meter, giving an indication of 1.13. If the aerial radiates all the power it accepted the system has a loss of 10 log (0.36/10) = 14.4 dB. This is a loss of about 3 "S" units and applies to received as well as transmitted signals.

So a lossy cable may give pleasing readings in the shack but it doesn't help in any other way. To be sure measure the antenna VSWR at the antenna.

73. VK3AFW. ■

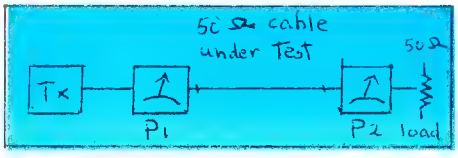


FIG 3.:
MEASURING MATCHED CABLE LOSS

Loss = 10 log P1/P2 dB

where P1, P2 are power meter readings in watts.

IF YOU'RE NOT BUYING AMATEUR RADIO ACTION

(IT'S AUSTRALIA'S BEST SELLING AMATEUR MAGAZINE)

THEN YOU'RE NOT KEEPING UP WITH THE LATEST NEWS, VIEWS AND REVIEWS

Please put me down for 12 editions of Amateur Radio Action, starting NOW!

RATES: Within Australia: $15.60. Surface Mail overseas: $21.00. Air Mail to New Zealand: $31.80. Papua New Guinea: $29.40. Air Mail to USA: $43.80. Europe: $47.40.

Herewith enclosed cheque/postal note/money order to the value of:

$A.....

Name.....

Address.....

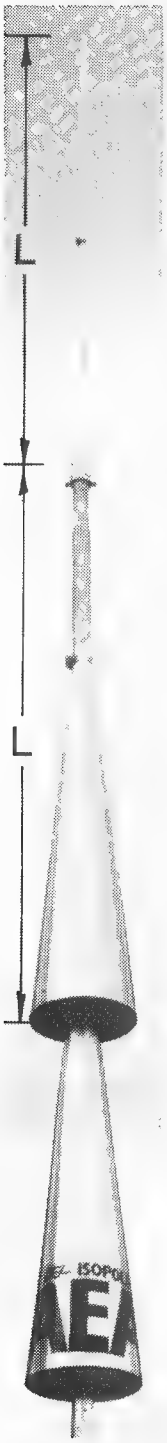
.....

.....

Postcode.....

Post to: Amateur Radio Action Subscriptions, Box 628E, Melbourne 3001.

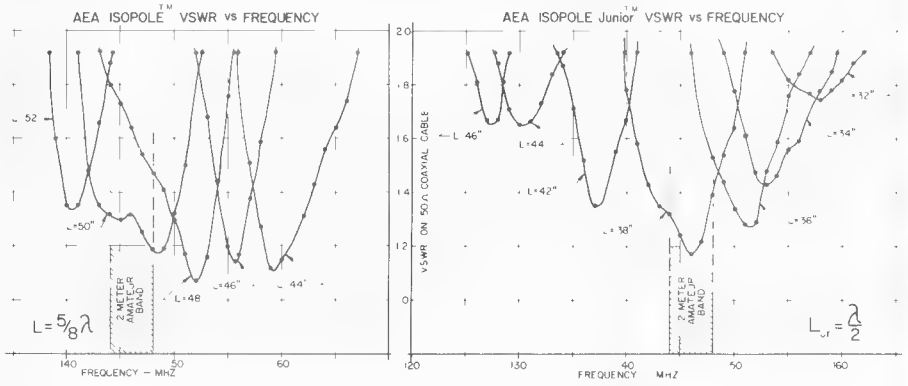
MORE PERFORMANCE FOR YOUR DOLLAR!
COMPETITORS KNOW ABOUT THE
ISOPOLE™
DO YOU? STUDY THE FACTS . . .



ISOPOLE 144
$75
+ P & P $2.50
MAST NOT SUPPLIED

The IsoPole is building a strong reputation for quality in design and superior performance. The IsoPole's acceptance has already compelled another large antenna producer to make a major design modification to his most popular VHF base station antenna. Innovative IsoPole conical sleeve decouplers (pat. pend.) offer many **new** design advantages.

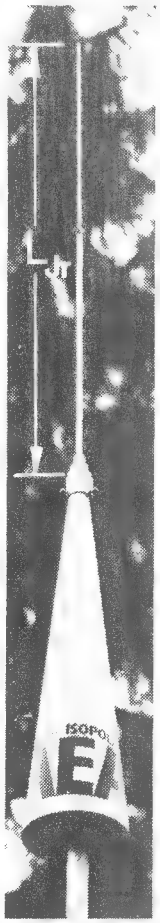
All IsoPole antennas yield the **maximum gain attainable** for their respective lengths and a zero degree angle of radiation. Exceptional decoupling results in simple tuning and a significant reduction in TVI potential. Cones offer greater efficiency over obsolete radials which radiate in the horizontal plane and present an unsightly bird's roost with an inevitable "fallout zone" below. The IsoPoles have the broadest frequency coverage of any comparable VHF base station antenna. This means no loss of power output from one end of the band to the other when used with SWR protected solid state transceivers. **Typical SWR is 1.4 to 1, or better, across the entire band!**


AEA ISOPOLE™ VSWR vs FREQUENCY
AEA ISOPOLE Junior™ VSWR vs FREQUENCY
VSWR ON 50Ω COAXIAL CABLE
2 METER AMATEUR BAND
FREQUENCY – MHZ
L = 5/8λ
L = λ/2

Outstanding mechanical design makes the IsoPole the only logical choice for a VHF base station antenna. A standard 50 Ohm SO-239 connector is recessed within the base sleeve (fully weather protected). With the IsoPole, you will not experience aggravating deviation in SWR with changes in weather. The impedance matching network is weather sealed and designed for maximum legal power. The insulating material offers superb strength and dielectric properties, plus excellent long-term ultra-violet resistance. All mounting hardware is stainless steel. The decoupling cones and radiating elements are made of corrosion resistant aluminum alloys. The aerodynamic cones are the only appreciable wind load and are attached directly to the support (a standard TV mast which is **not supplied**).

Operating on MARS or CAP? The IsoPole and IsoPole Jr. antennas will typically operate at least ± 2 MHz outside the respective ham band without retuning. However, by simple length adjustment, the IsoPoles can be tuned over a wider range outside the ham bands.

Our competitors have reacted to the IsoPole, maybe you should too! Order your IsoPole or IsoPole Jr. today from.



ISOPOLE 144JR
$55
+ P & P $2.50
MAST NOT SUPPLIED

AEA Brings you the Breakthrough!

the radio centre (Sole Australian Distributor)
Aerodrome, Archerfield,
P.O. BOX 136, ARCHERFIELD,
QUEENSLAND, AUSTRALIA, 4108.
Telephone: (07) 275 3030 – 277 5624

LISTENING AROUND

With Joe VK2BJX, Buronga, NSW

Well, what follows right now has nothing to do with amateur radio, but because it's current news it might make a good opening for this column. The fact that we've been eating horse meat for so long without knowing it, reminds me of a little cafe near Waterloo Station, London, where, despite the food rationing still on in Britain in 1949, I could always get steak. Remarking on this "unique" service, a fellow customer drew my attention to a faded notice high up on the wall which said "Only the best horse meat served here!". It might have been Steptoe and Sons old nag for all that I know, but it tasted OK, and it shows that at least the Poms were honest about it, don't you think?

I'm satisfied that we amateurs are a resourceful lot and physical handicaps are no bar to one's operating. Take, for example, a QSO that I was listening to the other day between two Californian stations and a ZL. Much to my astonishment one of the Yanks said that he was using "an artificial voice". He had had his vocal cords removed, so he said, but that didn't stop him modulating his transmitter with the "artificial voice". His articulation was quite good, and I didn't miss a word.

Remember the Wizard of Oz — he was a wiz if ever there was. Pascoe Vale has a Wizard by the name of Jack VK3NOG. Although only a novice call holder, he's a real "wiz" on CW. A visitor to Buronga a couple of months ago operating CW with a tiny key on the dashboard of his car, he was bowling the Yanks over like nobody's business. He's an ex-PMG operator and sure can rip along fast on that key. After he had scuttled about half a dozen Yanks, a VK6 demurely attempted to call Jack, but Jack went back at him so fast that the VK6 decided not to challenge him and quickly departed. Thanks for that wallet, Jack — it will lessen my chances of another $40 slipping out of my pocket like it did when I was riding my bike.

Brian VK1DX is off to Antarctica at the end of this year. He'll be heading for Hobart first to do some training, thence to Canberra, and finally he'll be aboard the "Thala Dan" on 24th of December, plus his Icom 720A, heading for Mawson as a physicist with a special interest in the collation of ionospheric data which will be sent back to the ANU computers in Canberra for analysis. His call sign at Mawson where he will be for 12 or 13 months will be VK0DX, and he hopes to come up on 80 as well as other bands.

Local Buronga people cannot remember a colder or wetter winter than we have just passed through, and while I was shivering and shaking from the cold (like Elvis P.) who should I contact maritime mobile near Frazer Island but Ralph VK2PHO from that Banana Republic, Coffs Harbour. Ralph was aboard his home made yacht, the "Shara" (aboriginal for Salt Water). Before retiring to Coffs Harbour, Ralph was originally a teacher at Wentworth Central School in 1962 and knows Buronga where I am. It's a pity that Jack VK3NTR from Ararat, or Steve VK4SE from Toowoomba, wasn't in the QSO also, because they're pretty keen yachtsmen.

Tom VK3VY, of Airport West, works at Radio Australia and has asked me to look him up when next I am in Melbourne to see what makes that kookuburra laugh on the overseas service. Might take you up on that, Tom, for I would like to see what makes "RA" tick.

Reading the mail, which is my most favourite occupation except when I'm making noises for others to listen to, often makes interesting listening, like when a VK5 describing his XYL was heard to say "When you see her, she looks like a *round dumpling*". I bet she crowned him with the rolling pin after that.

Sue VK5NOO was heard to say one night that she reckons the men do a better job of waffling than their XYLs. Enough said . . .

My present rig, a vintage EICO 753 (mostly valves but with a transistorised VFO), has been plagued with various troubles which, one by one, are gradually being sorted out. First there was intermittent hum on the transmission which was found to be poorly mounted electrolytics in the power supply. Then there was an effect called "back wave", and there was nothing in the books that I have to indicate what could cause "backwave effect". Not even in the ARRL was there any mention of the cause of it, or a cure. What happens with backwave effect on keying is that even in the key-up position the transmitter was still putting out about 50 per cent of the full power CW. This can make it impossible to copy.

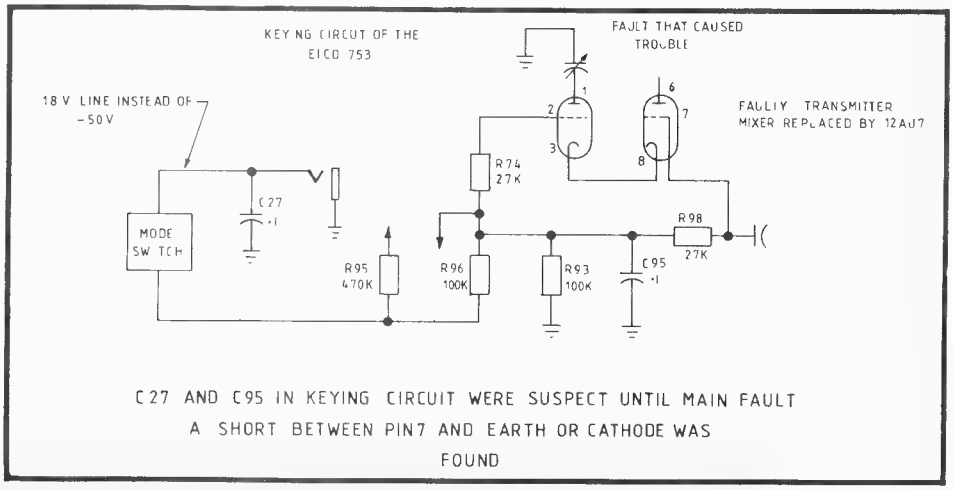
When SWL Alan Chung, of Cooma, visited me recently, we went over the keying circuit together. Two capacitors became suspect when it was found that in the key-up position instead of there being 50 volts across the key contacts, there was only 18 volts. So we were sure that either C27 (a .1 across the key near the mode switch) or C95 (a .01 in that part of the circuit connected to pin 7 grid of the 12AZ7A transmitter mixer valve) was leaking. A day or two later I observed that the backwave effect was also occurring in an intermittent fashion on my SSB. So remembering an old radio repair fault finding technique called tube tapping, I found that I got a positive response on my output meter every time I tapped the 12AZ7A itself. Checks on a valve tester soon revealed a bad short from pin 7 to either cathode or filament. I didn't have a spare 12AZ7A so popped a vintage 12AU7 in, and hey presto, the backwave disappeared. A replacement 12AZ7A has since been obtained and is now doing good service.

I've had a wonderful response on the air to the writing of this column and comments have come in from all over Australia. And I've had letters from shortwave listeners also — some long and very helpful, the most recent being received yesterday (15/9/81) from Rod Torrington VK3TJ, of South Pascoe Vale. He says that he has been running an EICO 753 for 11 or 12 years, having originally put it together as a kit set, and he's given me a lot of very useful information about the pitfalls that he struck along the way, and the way he overcame various problems with this set. Thank you very much, Rod, and the very many others who have helped me in so very many ways with sorting out the problems that I have had. As a result of your efforts you will now be hearing me not only on 80, but on 40 and 20 also, and on CW on all three. Some of you millionaires might be having fun with your solid state black boxes, but I sure am having some fun, and gaining much valuable experience, with my vintage EICO 753.

I've used up my space, but before I sign off, thanks again to all who have helped me with my teething problems with the EICO and for the many kind and encouraging comments that have been made on air about this column.

73, see you all later.

Joe VK2BJX. ■



C27 AND C95 IN KEYING CIRCUIT WERE SUSPECT UNTIL MAIN FAULT A SHORT BETWEEN PIN7 AND EARTH OR CATHODE WAS FOUND

ALARA

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION

At the last meeting of ALARA it was decided to hold a meeting at Valda's VK3DVT QTH on 3rd October to hand over the books to the incoming office-bearers. On air meetings will start on the 4th Monday of each month from then at 1030Z on 3.570 MHz.

Members of ALARA would like to say a very special thank you to our past president, Raedi Fowler, YF of VK3BHL. Raedi was vice-president and took the chair when our president resigned last year. This enabled ALARA to continue through a difficult time while trying to get the group on to a national level. Although not licensed, Raedi is very interested in radio and especially the YL involvement, and has been a member of ALARA since its early days. She has made a valuable contribution to ALARA in the past year.

The YL sked on Thursday night has been changed to 1030Z 3.570 MHz, and also Marlene VK5QO will be on the frequency looking for someone to chat to.

ALARA numbers are increasing and on most Monday nights a new call is heard. So, girls, please join in, it's very friendly and informal. Also it is a chance to express your views on ALARA activity.

The VK3 State Convention is to be held at Bendigo in conjunction with the Midlands Zone Convention on 20th and 21st February, 1982. So I look forward to meeting some of you at the Convention.

Remember the ALARA Contest on 14th November, 1981. Time: 0001 GMT to 2359 GMT. Suggested frequency: Phone 28.450 to 28.550, 21.160 to 21.360, 14.180 to 14.300, 3.570 to 3.600. CW 28.100 to 28.150, 21.125 to 21.140, 14.050 to 14.060, 3.525 to 3.535.

Operation: Phone and CW—Each station may be worked twice on each band ONCE on Phone, ONCE on CW. All contacts from same QTH. Standard licence and operator procedure.

Scoring: 3 points for ALARA member.

Phone: 5 points for ALARA club station. 1 point for non-member YL or OM.

CW: Double all points for CW scoring.

Further details from me or will be published in contest column of AR, also Electronics Australia and Amateur Radio Action.

Wishing you all good DX and lots of contacts in the contest.

73/33. Margaret VK3DML. ■

The WIA Book

What is it?

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

117 Rivett Street, Hacket, ACT 2602.
10th September, 1981.

The Editor,

Dear Sir,

I have been tempted many times to put pen to paper and air my grievance but have refrained from doing so in the hope that the cause of my irration may cease but, alas — no! it hasn't and in fact has worsened.

Maybe my cause is hopeless as, after all, my complaint is the so-called "Gentleman's Agreement" regarding the use of SSB in the CW segment of those bands which the novice operators share with other amateur users.

Each operator derives pleasure from his or her particular interest during the time, often limited, that one has to pursue the hobby of amateur radio. My particular interest is in CW and mainly in the 15 metre band of which we have a lousy 25 kcs for that mode.

Unfortunately my pleasure is frequently ruined by those operators who consistently disregard the agreement, to which I have referred, by their blatant and persistent use of SSB between 21125 and 21150 kcs.

I will refrain from naming the "offending" call signs for I'm sure if they read this article each will know to whom I am referring. In many instances the same old offenders can always be relied upon to be there on "their" frequency. One would think it had been allocated by DOC for their exclusive use.

Another aspect of this is my dismay that the principals in this thoughtless behaviour are novices; but not that AOCP operators are without blemish either. My point is, how can we as novices expect a fairer share of the "goodies" when we're not prepared to respect the parameters that have been set on us and show consideration to other users and their interests.

In grinding my axe I know I speak for many operators who feel very keenly about this issue, and we should let that fact be known "on air". I have heard the SSB users in the CW segment voice their objection to the QRM from the CW operator. How about that?

Look, this is a wonderful hobby from which, as I said before, we all derive our special interests and pleasure. Surely it's not asking too much of us to respect the interests of one another so that we all might have a fair go!

73 to all!

Yours sincerely,
Cec Maloney VK1NCX. ■

The Editor,

Dear Sir,

Publishing articles such as "Visiting a Ham" (AR September 1981), in my opinion, showed a distinct lack of editorial responsibility. Please do not print my name, address or call sign — I don't want to hear any CQ calls coming from my doorbell, just in case some turkey takes the article seriously.

Yours sincerely,
Name and address supplied. ■

21 Russell Avenue, Woodend, Vic. 3442
3rd September, 1981

The Editor,

Dear Sir,

In recent months we have seen a vast increase in the number of amateurs using the RTTY mode on our bands. Many of these chaps are using computers to generate RTTY. Now the snag is that these fellows have, in most cases, never used a machine to generate RTTY and therefore do not know the finer points of RTTY. The trouble is that their computers automatically insert a line feed and carriage return at the end of the line. Unfortunately, this is just not good enough. RTTY operators must always send two carriage returns at the end of each line and then they should send one line feed followed by two letter- or figure-shifts, depending on how they wish to begin the next line.

Another problem is when they wish to send some figures during their usual text, these new machines automatically insert just one shift where two should be sent.

Perhaps those chaps using computers to generate RTTY should give a thought to those of us who are forced to use old mechanical machines that do not have automatic line-feed and carriage return at the end of each line.

Yours faithfully,
Terry Robinson VK3XCM. ■

5 Masons Parade, Gosford 2250
2nd September, 1981

The Editor,

Dear Sir,

PHONE PATCHING

As one who participated in passing third party messages in the recent Telecom strike I must support the views of James Goodger VK2JO. While the indirect procedures used were of great value, sending messages concerning sickness, alleviating distress and notifying deaths and births to country relatives, I believe that amateurs could provide a more efficient and streamlined service by direct phone patching.

With the development of CB radio, two-way commercial mobile-to-base radio, and satellite communications run by private commercial firms, it is plain that there is no longer a monopoly in the transfers of messages. The reasons formerly given for denial of third party privileges were that it provided unfair competition for an essential government service. In 1981 clearly the small volume of traffic handled by amateur stations would not make any difference to the viability of Telecom.

As James says, phone patching would improve our public relations greatly and provide a much better emergency service.

Sincerely,
Lindsay Douglas VK2ON. ■

130 The River Road, Revesby, NSW 2212.

The Editor,

Dear Sir,

I would refer you to the article that appears on page 11 of the September issue of "Amateur Radio" entitled "Visnting a Ham" by John VK2ATT, in "The Lyrebird", issue No. 14, Autumn 1981.

The opening title caught my eye and the first few lines rang a bell and stirred my memory that I had read this article before; thinking on the matter "Short Wave Magazine" came into mind and so I went through my filed copies and when I came to the September 1949 issue I found the article on page 530 of that issue. The author is given as "Jimminy" and from memory I feel then pen name hid either the editor of "S.W.M." at that time, Austin Forsyth G6FO, or the assistant editor, L. H. Thomas G6GB.

Comparing the texts of the two articles I find three trivial alerations in the copy of "AR". On line 10 of the first column "strike", on line 3 of the second column "8,20" and on line 12, also in the second column "DOC"; in the original article these read "stroke", "8.30" and "GPO" respectively.

The original article is also divided into three sections by sub-headings, the first of these occurs after the word "DOC" and reads "All-round Check", the second sub-heading is after word "11.30 p.m." on line 8 of column 3 and reads "Sealing the Friendship".

There is also a note from the editor at the heading which reads "Some readers at least will know exactly what it means to suffer this sort of experience. It is all part of the game — but need it be?" A small sub-heading also appears under the main title reading "That Personal QSO".

I remain, most cordially yours,
Norman Burton. ■

LETTERS TO THE EDITOR

Charles Borg 9H1BS
22 Old College Street, Sliema, Malta
7th August, 1981

The Editor,
Dear Sir,

9H1FBS — MEANING 9H1 FIRST BLIND STATION

About fifteen days ago, amongst the usual amount of QSL cards received by post, there was a letter which contained a photocopy of the article "Operation Whitestick" which appeared in the June 1981 edition of "Amateur Radio".

This article was read to me by my mother and immediately I decided to give my contribution by writing this letter, hoping to encourage other handicapped persons who might be interested in this amazing hobby of radio.

To start with, I would like to say that I am 28 years old and have been blind for 12 years (since May 1969). My first contact with shortwave radio was a year after my blindness, when our local blind centre donated me a valve receiver. After I got the feel of the controls of this piece of equipment I started to find my way around the broadcasting bands and spent most of the day listening to broadcasting stations and typing reports to them hoping that they would acknowledge by sending me a QSL card, and sometimes other information regarding programmes, etc.

Three years passed by and through a friend I was introduced to Mr. Ron Meachan (RH1R), Head of Telecommunication Section of the Technical Institute, Paola. Ron advised me to apply for the evening course held for radio amateurs at the Institute. I attended regularly for a year and took down notes later at home with my brother's help, who at the same time as myself started his interest in ham radio.

Certain modifications had to be made to the local law regarding ham radio operations, since I was the first blind person to attempt this examination. The examination was in two parts, CW and theory. I managed passes in both sections, and my appreciation goes to all those people who helped. I now had a licence.

The next thing was to get on the air, which I did with the help of friends. I managed to acquire a small VHF transmitter (1.5 watts), together with a converter linked up with my FRG7. The antenna was a simple vertical dipole. My station was thus fully operational and presently I am the proud owner of a Kenwood TS180S, which, being a fully transistorised rig, facilitates tuning. This rig has both digital and analogue readout. Again with the help of friends I learned how to find the frequencies through counting the turns of the main tuning knob. I operat regularly on 21.160 or 14.160 from 05.00 Zulu to 06.00 Zulu beaming Australia. For the moment my shack is not furnished with audible indicators for SWR, antenna direction, etc., but from your article I gather that such aids are being constructed, so it remains for me to enquire about more details for such audio aids for the sightless radio amateur.

For my final, I would like to thank the local authorities, Mr. Ron Meachan (9H1R), the local amateurs and clubs for their encouragement and help to reach my present position in amateur radio.

Good DXing.

73. Charles Borg 9H1FBS. ■

The Editor,
Dear Sir,

REMEMBRANCE DAY CONTEST RULES

This year's radical changes to the RD Contest rules seem to me to detract greatly from the value and purpose of this long established and popular contest.

These purposes are, I believe, the encouragement of participation more than winning, and the friendly communication with the greatest possible number of fellow amateurs. Like other contests it should also promote operational skills and manners.

The elimination of varying point values between States has tended to favour the operator with the biggest punch, and has reduced the chances both of participating and of winning of the lower power operator. Under the old system one used to employ skill and experience to operate into States with high point values rather than bash in at anything available, at any cost to others. This type of skilled operation led to much less pile-ups than occurred this time.

I do not recommend a return to the acceptance of inter-callarea contacts (Rules (c) and (d) 1980). This system favoured the States with the heaviest amateur population. However, the option of working interstate stations twice on certain bands (Rule (b) 1980) seems to me to put a premium on skill and thus to conform with the spirit of the contest.

Another point I would like to make very strongly refers to the VHF operating rules. The one hour rule discriminates sharply against country operators who have not the same access to simplex operation as city amateurs.

To illustrate my point: I made, during Sunday only, 155 VHF contacts (144 MHz) with only 47 different amateurs. This means that I had 108 more contacts than would have been possible without the one hour rule, in addition to the fact that I had, in any case, 47 more contacts than a country operator outside simplex distance would have been able to obtain. Since my VHF contacts constituted 32 per cent of my total, and were obtained only during the second half of operating time, I feel that I was unfairly advantaged. I am sure that some country operators were discouraged, or will be so in future, since only few were heard on the bands. The one hour rules appears to me to lack any logic; its abandonment would make scoring more balanced.

As a positive contribution I suggest that the system of points based on distance be reintroduced, and that the weighting system for State totals should be modified. This weghting system is apparently intended to relate to the participation ratio (logs/licences). In order to assess not only participation but, what is more challenging, improvement in participation, an average participation factor over a number of years — say the last five — should be calculated and the actual year's State participation factors should be measured against the 5-year average; improvement or deterioration should be used as the weighting factor.

I have calculated, and present in the table, the effect of this approach. Had it been applied in 1980 it can be seen that results would have been quite different by giving an advantage to the improver States, thus giving encouragement to increased participation — one of the basic aims of this great contest.

Yours sincerely,

G. H. Cranby VK3GI (ex VK7GC. ■

POINT ASSESSMENT TABLE

State	VK1	VK2	VK3	VK4	VK5	VK6	VK7
1980 ratio	.2114	.0768	.0553	.1402	.2625	.2334	.3911
Average ratio	.2633	.0517	.0464	.1895	.2805	.1747	.2122
Variation	.8029	1.485	1.192	.7400	.9360	1.279	1.843
Point score	21229	61138	51820	72730	105577	78371	46028
Assessed score	17075	90790	61769	55820	98820	100237	84830
Position	7	3	5	6	2	1	4
1980 position	6	5	7	4	1	2	3

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. R. F. (ROY) STEVENS, MBE	**G2BVN**
Mr. R. A. WHITING	**VK3MZ**
Mr. A. F. LEVERSHA	**VK3AER**

OBITUARY

R. A. WHITING **VK3MZ**

On the 14th September, 1981, Reginald Ambrose Whiting, the self-styled "Voice of Preston", died at the age of 70.

Reg was born in Adelaide, was educated at Pulteney Grammar School, gained his AOCP (No. 988) on the 25th August, 1932, and was issued the call sign VK5MZ.

Migrating later to Victoria, Reg exchanged that call sign for VK3MZ, and was a constant operator on 40 metres and, to a lesser extent, on 2 metres. Until comparatively recently, Reg built his own equipment, in which he took great pride. However, when a friend died several years ago he acquired a FT101B and a converted car phone, which latter he used on 2 metres FM.

In addition to his amateur radio activities, Reg was a keen gardener, and frequently talked on air about his vegetables.

A member of the Radio Amateurs Old Timers' Club, he had only one year to go to become eligible for the Club's 50-year Seal.

Reg was also a member of the North Suburban Amateur Group, which organisation he joined shortly after its inception in 1949, and was held in high regard by the members.

A man with a very keen sense of humour, Reg really enjoyed a joke against himself, as was seen in the antics of the 3 Rs — Reg. Russ (VK3AIX deceased) and Rainbow (VK3JR), who were inseparable in the 1950s.

Reg's only child and daughter, Helen, died suddenly some years ago, and he never recovered from this loss.

To Gladdie, his XYL, probably equally well known from his constant references to her, we extend our sincere sympathy on her loss. To those who knew him, the amateur bands will never be quite the same without Reg Whiting.

John Ireland VK3AJI. ■

HAMADS

- Eight lines free to all WIA members $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

Icom IC701 Tcvr, complete with IC701 PS and Electret desk mic. ICSM2, exc. cond., $900. David VK3ADW, QTHR. Ph. ($3) 857 8346 AH.

Kenwood TS820 Txcvr, as new, MC50 mic., 500 Hz CW filter, owner and workshop manuals. spare valves, $775. VK2GE. Ph. (043) 92 4900.

SE-502 22 ch. AM/SSB AC/DC 10m Txcvr, as new, little used, $80. VK2AMT, QTHR. Ph. (02) 451 4902.

ALBANY

LOCKYER LAUNDRETTE

32 SOUTH COAST HIGHWAY
(Off the Roundabout)

7 WASHERS and 4 DRYERS
Support a Local Amateur

VK6NQ

FRG7 Rx, no mods., little used, $230. Bruce VK3VIH, QTHR 1980. Ph. (03) 719 7476 (H) or 67 6331 (Bus. — message only).

All band Lin. Amp., $320; Hallicrafters Rx, .5-30 MHz, $25; UHF AWA base stns., $40 ea.; 6 x 2m transverters, $150; MR20B low BWD, $20; 2 x 6 m converters, $40; old telephones, $30; 48 el. 432 ATV ant., $50; 2 in. CRO, $50. Offers or exchange. Jock Jeffery VK2AJY.

Heathkit HW101, good cond., power supply, speaker and hand mic., $350, ONO. C. Duddington VK6KCD, 12 Daglish Street, Narrogin 6312, W.A. Ph. (09) 271 0660.

FDK multi-quartz 16 2m FM crystal controlled Txcvr, repeaters 1 to 8 and simplex channels 40 and 50 fitted, expandable to 23 ch. plus two priority, all accessories, books and original packing, $190, ONO. VK5KDK (QTHR 1980 VK5ZMF/NCY). Ph. (08) 261 1210.

Vinten BTR10R 2m FM console cabinet base station, 50-70W, 240V AC, 6 ch., fitted with channels R42, R44, R48, S40, S50, deck mic., 600 ohm line remote control unit, handbook, maintained to factory standard, $130; Vinten BTR12X 6m FM rack mtg. or table top base station, 20W, 240V AC 52.525 MHz, fist mic., handbook, maintained to factory standard, $60. VK3ADM, QTHR. Ph. (03) 592 2168 after 6 p.m.

2m FM Rx Crystals, 10 MHz, suits 2 MHz IF frequency, simplex 49 repeater channel 1-R2-R6, $5 ea. D. M. McConnell VK3YNB, QTHR.

Yaesu FT901DM Txcvr, as new, and complete with instruction book and service manual, bargain at $850. VK3LG, QTHR. Ph. (03) 67 2338 Bus., (03) 277 2633 AH.

Kenwood TS-820S HF Txcvr, exc. cond., extra new driver and finals, hand mic., $700. VK7NKD, QTHR. Ph. (002) 43 8972).

Amateur Station Complete: Kenwood TS820S digital, Oskerblock SWR 300, Dentron antenna matcher, Drake filter, Hustler vertical antenna, Shure mic., plus coaxial cable, etc., $995. VK2NYZ. Ph. (02) 871 3956.

Yaesu FRG7 Rx with narrow band filter, orig. carton and manual, free delivery to Melbourne address, $250, ONO. Ph. (05) 727 0361.

Used Philips Video Cassettes (suit N1500B), 32 x VC 60s at $6 ea.; 32 x VC 45s at $4 ea.; 6 x VC 30s at $3 ea. Will sell separately or will consider an offer for the lot. Apply the Librarian, Mackay State High School, PO Box 489, Mackay, Qld. 4740.

Kenwood TS120V, inc. CW filter and MC35 mic., excellent cond., $46. VK7AN (ex VK7NAB), QTHR. Ph. (003) 31 7914.

Icom IC22, with reps. 2 through 8, simplex 40 and 50, in g.c., $150; Icom IC202E, with USB/LSB and Oscar crystal, v.g.c., $150; Kenwood TV502 2m txcvr, with Oscar crystal, suits TS520, etc., as new, $150. VK3NG, QTHR. Ph. (054) 82 3546.

Microwave Modules MMT432/28S 70cm Transverter, ½W in at 28-30 MHz, gives 10W out at 432 MHz, switchable 432-434 or 434-436, incl. attenuator for 10W drive, $220; microwave modules MML432/50, 432 MHz linear amp, all solid state, incl. built-in preamp automatic T/R switching, 10W in 50W out, $200; Ocom IC502 52 MHz portable Trx, very little use, $140; Kenwood TS120V, with matching SP120 speaker containing a regulated 240V AC to 13.8V DC supply, in as new cond., $500. VK2ZDJ, Griffith, NSW. Ph. (069) 62 4937 AH.

National 110 Txcvr, 250 watts, used four times, physicaly too big for my car, $400, ONO. Ph. (03) 873 3939 9 to 5, (03) 735 1350 AH.

KLM 2m Linear Amp., 140W solid state, model 10-140BL, v.g.c., $175, or swap for an IC22A or similar. VK7AX, QTHR. Ph. (004) 25 2923.

Realistic DX300 Communications Rx, 10 kHz to 30 MHz frequency range, digital readout, good cond., in orig. box, with manual, $270. VK2AZT. Ph. (069) 42 1392.

FT650 Transverter, as new, $155; 2 new 572B valves in cartons, $65; prop pitch motor, $50; 4CX250B, new, with used socket, $50; SEQ RTTY mod.-demod., with power supply, $80. VK4ZEO. Ph. (07) 377 3785 Bus., (07) 200 1406 AH.

IC22S, complete accessories, mint new and unused, $290. VK3ZSV, QTHR. Ph. (03) 596 3968.

Yaesu FT-7B Txcvr, with YC-7B digital readout, mic., manuals and xtals for 28.0 to 29.0 MHz, $600. Frank VK2NAP, QTHR. Ph. (02) 452 5172.

Kenwood TS520S and DS5 1 A DC/DC converter fitted, $600. VK2ST, QTHR. Ph. (02) 649 7385.

Wilson System II Triband Beam, as new cond., built like a battleship, complete with bencher 14-30 MHz optimized balun, F to B ratio 25 dB, forward gain 8.5 dB, $300. Ph. (03) 725 9285.

Shack Cleanout: Home-brew 20m band linear, TVI-proofed and metered, plus two coaxial switches, valves 2 x 813, internal filament, bias and relay valves 2X813, internal filament, bias and relay supplies, requires external HV supply of 2000-2500V, $110; power supply, 2500V at 1.5A plus 4000V at 1A continuous rating, well filtered, $125 (purchaser to collect due to weight); cabinet plus 4 x 1000 tube and HB socket, large fan, meters, switches, FIL Xformer, for that big linear, not assembled, $125; standard CRO tubes, 2 x 7 in. NC134 plus 1 socket, $12 the lot; 1 only 5CPI, $10; long resistance tubes, suitable for SSTV, 1 x 5FP7 inc. yolk, $18; 1 x 3FPI, $10; 2m IGL solid state xtals, ch. 2, 5 and 40, 25W out, needs alignment, $65; Marconi audio output meter, 1 milliwatt-10 watts, variable impedance, $27; Hewlett Packard VTVM 410B, including RF probe, $40. Everything must go. Ph. (03) 725 9285.

Icom IC701, late factory noise blanker, fan mods., mic., as new, carton, manuals, $750; Dentron MLA 2500 with vernier controls, as new, carton, manuals, $800; Dentron super tuner plus, $170; Daiwa RF 660 speech processor, $70; Tono 7000 E comm. computer RTTY, manuals, $700; Centronics P1 printer to suit, $350. Ph. (02) 57 4648.

Yaesu 680R all mode six metre txcvr, in mint cond., complete in orig. carton, $450; two new 4 x 150A VHF tetrodes, $30. VK4RP, QTHR. Ph. (07) 265 1357.

MOE

CODLIN COMMUNICATIONS

84 ALBERT ST. **(051) 27 4516**

Everything for the Amateur

KEN VK3KC BRUCE VK3VRE

ADVERTISERS' INDEX

AUDIO TELEX	43
AMATEUR RADIO ACTION	54
ANDREWS COMMUNICATIONS	21
ATN ANTENNAS	44, 49
BAIL ELECTRONICS	60
BRIGHT STAR CRYSTALS	47
CHIRNSIDE ELECTRONICS	6
COMMONWEALTH AIRCRAFT CORPORATION LTD.	48
CW ELECTRONICS	44
DICK SMITH	29, 30, 31, 32, 48
EMONA	7
GFS	5
HELRAY ENGINEERING	6
NSW DIVISION WIA	36
SCALAR INDUSTRIES	2
SIDEBAND ELECTRONIC ENGINEERING	41
SNOWY RIVER CO.	27
THE RADIO CENTRE	55
VICOM PTY. LTD.	22, 23, 35
WILLIAM WILLIS	49
W. & .G. WULF	25

SHUTE HARBOUR

MOTEL
& Licensed Dining Room

SHUTE HARBOUR, Q. 4800
PHONE (079) 46 9131

DAVID McINERNEY

IC22S with 5/8 mobile whip, cond. as new, $250; Yaesu FT75B mobile HF with DC/DC power supply and ext. VFO, $350; AWA forest phone tweaker, to go on 160m AM with 1825 kHz xtal, $80. VK3APL, QTHR. Ph. (03) 870 3715.

MEK6800D2 Microprocessor Evaluation Kit, fully assembled with full DOCs, few hours use, $120; three Collins 32RS-1C 1.6-15 MHz 4 ch. xtal locked 100W rack MTD filter type SSB txcvrs, complete with Collins phone patch/control and dir. wattmeter, plus Electrocom FS keyer, manual copy incl., $90 each, $250 the three; one Aerocom 10LA 1 kW PEP output linear amp., 2-22 MHz, with all 4 coil sets, including one new 3-1000Z valve and two used 3-1000Z, minus plate transformer, manual copy incl., $140. Prefer buyer pick up. Ian Cousins VK5IK, QTHR. Ph. (085) 672, line 252 (M).

Deceased Amateur: TS520S, $495; DX 160 communication receiver, $95; Icom regulated power supply, 3 PA, $50; Hustler 4 band vertical, $50; Cushcraft ringo vertical (2m), $10; Midland VSWR/PWR meter, $25; all in good condition. Mrs. K. Haining. Ph. (02) 649 5665 (Saturdays only).

WANTED

Drake T4XC or similar all band Tx. Jock Jeffery VK2AJY.

Two 70 cm Hand-held Txcvrs, single or multi-channel. VK2DLH, QTHR. Ph. (02) 50 7696 after 5 p.m., ask for Peter.

Monobander HF Mobile Txcvr for 40m band, will consider multi-band unit, must be in good working order. VK2ATP, QTHR. Ph. (02) 98 7151.

External VFO for Swan 350 Txcvr. VK2WC, QTHR.

Kenwood TV502 Transverter, good working cond. Les VK2VUC. Ph. (02) 570 8839.

Circuit Diagrams for BS5 and SM220, pan-adaptor for TS520S, will pay cost of photocpying. VK1RH, QTHR.

Variable Capacitors, two, both well insulated, for antenna tuner, (1) split-stator, about 10 plates each side, widely spaced, (2) single stator, about 28 plates. Tom VK3ALN, QTHR. Ph. (03) 232 4156.

Linear HF Amp. to suit Argonaut, 3W in, 50 to 20W out, will consider home-brew, need not cover all HF bands. VK3VC, QTHR. Ph. (03) 870 8085.

Copy of the ZL FT200 instruction and maintenance manual. Write Col McDougal VK2VRZ, "Woodlands", Coolamon, NSW 2701.

A Parabolic Dish for 1296, please state size, etc. Bert VK3BH, QTHR. Ph. (03) 80 1204.

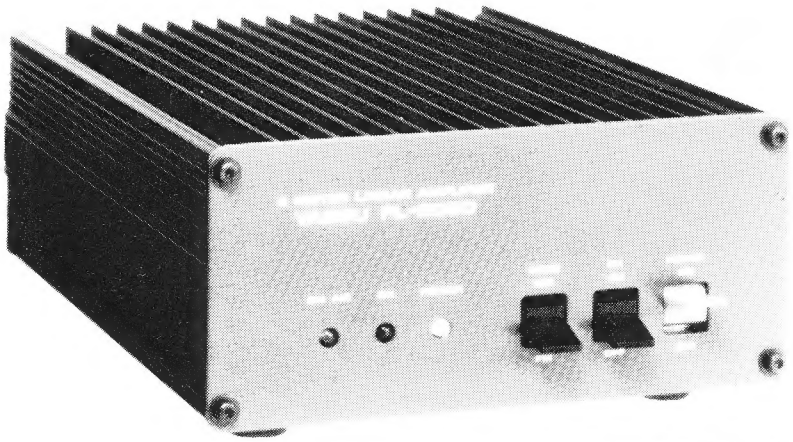
Century 21, in mint condition. VK2SU, QTHR.

TRADE HAMADS

RTTY Siemens 100A, $120; UHF FM321, all 40 ch. plus repeaters on 70 cm, $299; MLA2500 linear amp with large front panel, 2000W power output meter, 1.8 to 30 MHz, AM, SSB, CW, RTTY, SSTV, $750; FRG7 rx, 500 kHz to 30 MHz, $275; ex RAAF Pye aircraft transceiver, 110 to 140 MHz, $45; UHF FM320 transceiver, $259; new W65 18 ch. SSB CB radio, $179; new W65 40 ch., $195; 18 ch. walkie talkie, $110; 40 ch. CB with scanner, $99; 23 ch. CB, $55; 18 ch. CB, $69; 27 and 28 MHz 4 el. beam, $79; helical ant., $8.50. Different rigs coming in each day. When in Sydney drop into Park Disposals, 32 Park Street, Sydney, 2000, near Town Hall Railway. Ph. (02) 264 7515. Rigs posted anywhere in Australia, NZ, PNG, Pacific add $5.

Blank Cassettes at ridiculous prices: Mark II, by Magnetics, 2 only C90LN, $1.02! 3 only C60LN, $1.02!!. The only extra is postage $2.00 for 1 to 10 cassettes, then add 50c for each additional 20 cassettes. Note: Library cases are not supplied. G.G. Communications Engineering, 14 Wiliam Street, Donvale, Victoria 3111. Kevin Gluyas VK3YPL.

TWO METRE LINEAR AMPLIFIERS

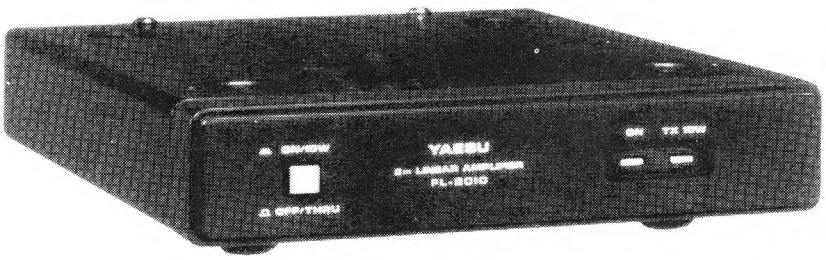


YAESU FL-2050

Drive: 10 watt (max. 15 watt)
Output: 50 watt (for 10 watt input)
Switchable RxAmp 12dB gain for
FT480R, FT227RB etc.

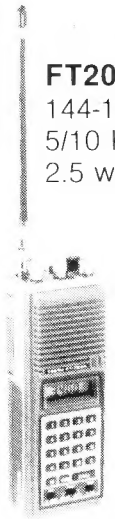
YAESU FL-2010

Drive: 2.5 watt (max. 3 watt)
Output: 10 watt
for FT207R, FT209R etc.



NEW FM HAND HELDS

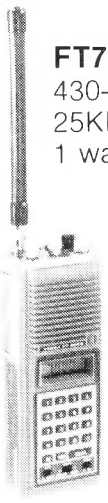
FT208R
144-148 mHz in
5/10 KHz steps
2.5 watt output



FEATURES:

* LCD display with a lamp for night-time use.
* Keyboard entry of all frequencies and split frequency for non-standard repeaters.
* Up/Down scanning. Manual or auto scan for busy or clear frequency. Automatic scanning restart.
* Priority channel with search-back feature.
* Memory scan and scanning between two desired frequencies.
* Extremely low battery consumption (approx. 20mA squelched).
* Memory back-up battery life estimated at more than five years.
* 16 tone DTMF pad on the front panel.
* Equipped with rubber flex antenna and Ni-Cd battery pack.
* Interface to tone encoder FTS-32AE, and tone squelch FTS-32, optional.
* Speaker/microphone (optional).

FT708R
430-440 mHz in
25KHz steps
1 watt output



ELECTRONIC SERVICES
STAN ROBERTS VK3BSR
38 Faithful Street.
WANGARATTA 3677
Telephone: (057) 21 6260
Telex: Teletra AA56880

AUTHORISED DISTRIBUTORS

VICTORIA
Eastern Communications ..... (03) 288 3107
Codlin Commun. (Moe) ..... (051) 27 4516
G.F.S. Electronics ..... (03) 873 3939
Imark ..... (03) 329 5433

N.S.W.
Emtronics ..... (02) 398 6378
Inverell ..... (067) 22 1300
Orange/Cowra ..... (063) 45 0415

QUEENSLAND
C.W. Electronics ..... (07) 397 0808

S.A.
Compucom ..... (08) 43 7981
Farmers Radio ..... (08) 293 2155

W.A.
Patcom Commun ..... (095) 35 4592
Willis ..... (04) 328 9229

TASMANIA
Hobby Electronics ..... (002) 43 6337
Burnie ..... (004) 31 1708

And other regional centres.